Australian MODEL RAILWAY Magazine

$2.00

AUGUST, 1983. ISSUE 121. Vol.11. No.4

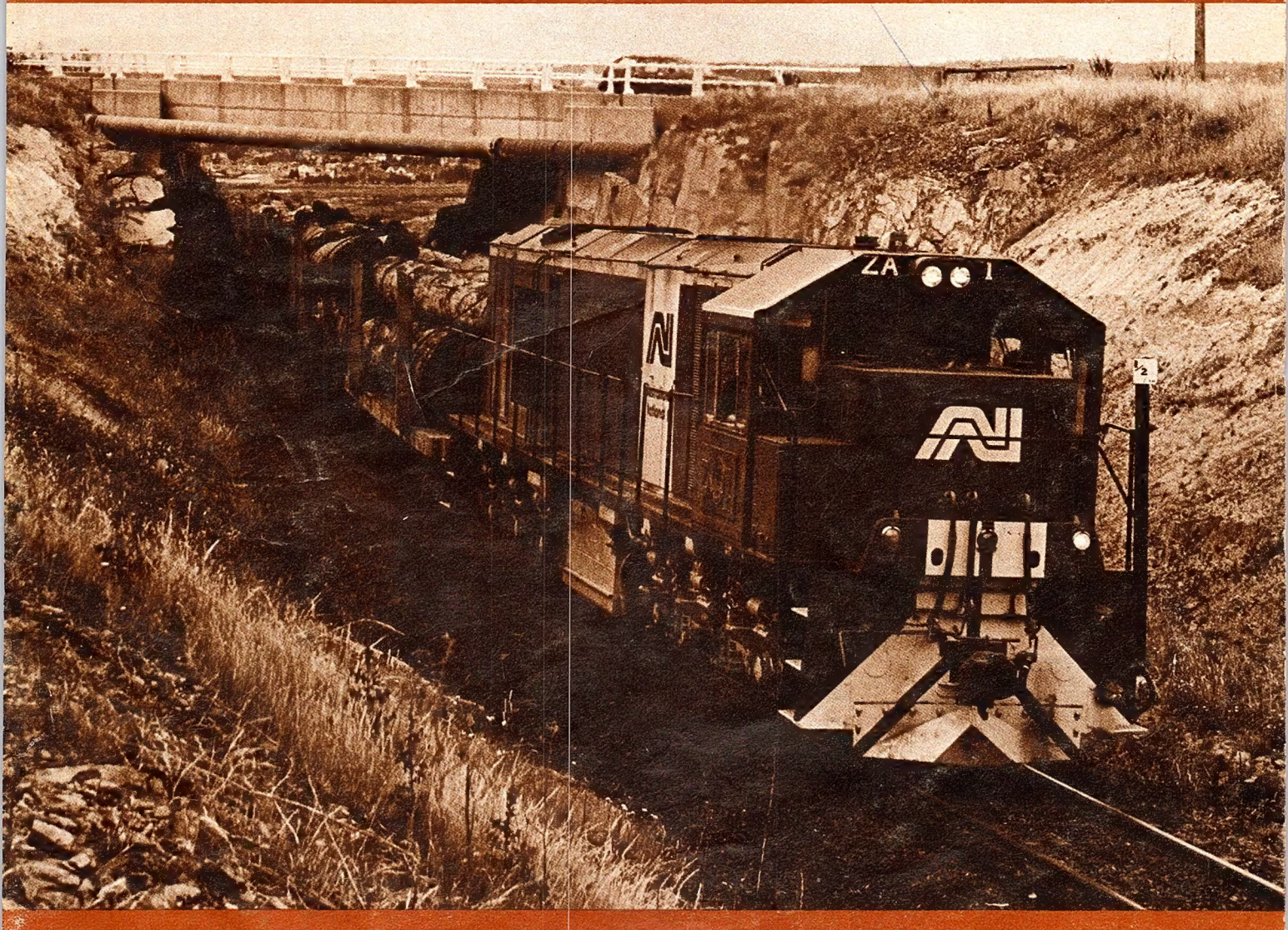
IN THIS ISSUE:

Model Railway Layout
NEW ZEALAND STYLE

Tasmanian Log Wagons

Kitbash D59 Oil Burner

Scratch Building:-
Coal Handling Plant
in 'O' scale
and
Medical Service Car



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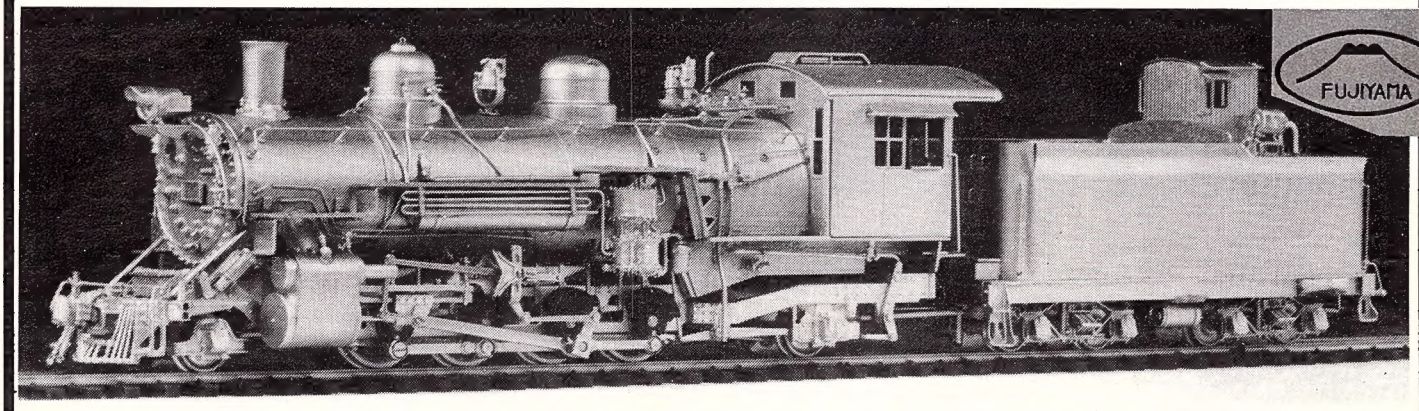
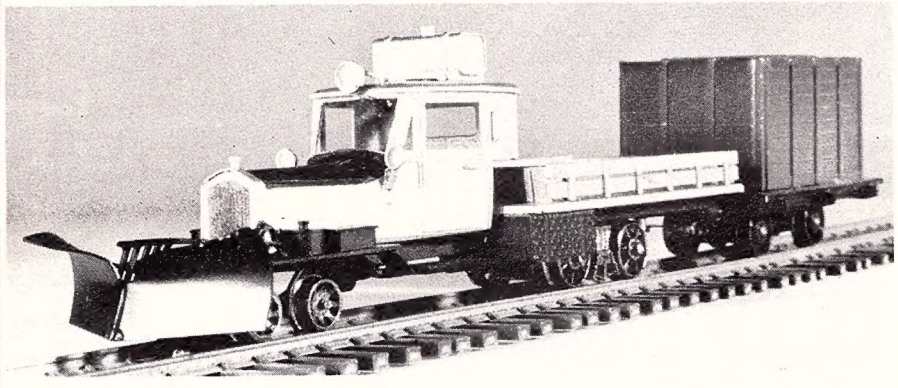
*Recommended retail price only.

NEW ARRIVALS . . . . . .
— NOW ON THE 'READY TRACKS' . . .

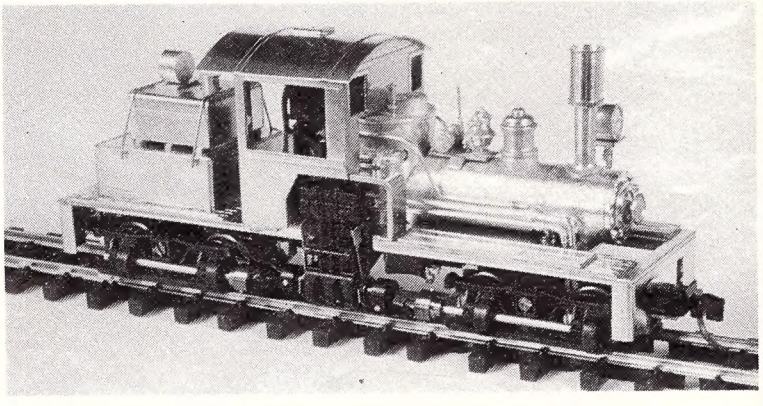


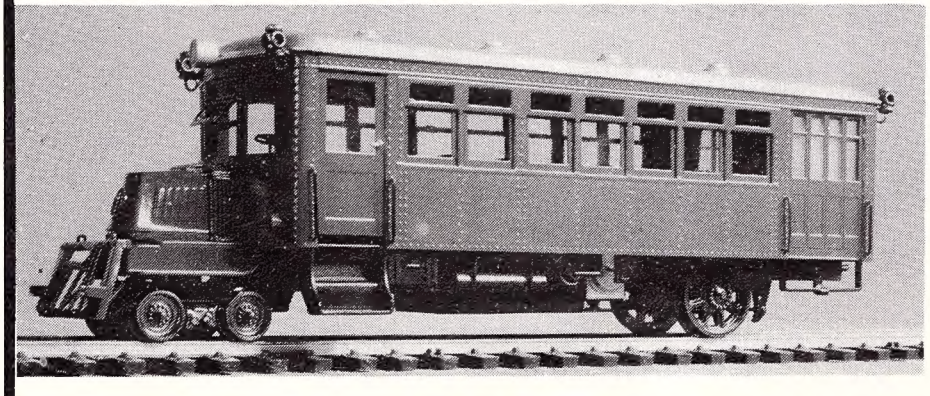
3' Gaugers working in HOn3 will welcome this new run of the mighty D.& R.G.W. outside frame, "K-37" Mikado, by 'FUJIYAMA'. One of Japan's top builders. Comes with fully furnished cab, idler gear-box and all new castings.
PRICE: $730.00



Built in Japan to the order of Lambert Associates, the HOn3 Rio Grande Southern No.6 Work "Goose" will be keenly welcomed by HO modellers working in 3' gauge. No.6 comes with Powering Van and is supplied painted, with decals. PRICE: $176.00

Loggers working in 30" gauge have long wanted a Shay suitable for HOn2½ gauge track . . . Now comes the Michigan-Californian Logging Co. 2-Trucker, to fill the bill! Of Japanese manufacture, with simplified detail to match its keen price, this Lokie is capable of negotiating curves down to 150mm radius. PRICE: $256.00
(HOn3 version following May 24th - $265.00. Also N scale 3-Truck Shays - $273.00).





A train in itself and ideal for branchline service, the Mack Model 'AC' Rail Motor is now available for service to HO gaugers. A fine model of Japanese manufacture, the Model 'AC' Car comes with under-floor motor, painted finish and full interior. Including car seats, operator's seat, shift lever and brake wheel. PRICE: $263.00

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Have you seen our range of scratchbuilders materials and detailing items. Some are listed below:-

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Australian Models

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D1007 Circuit Boards	Pkt of 3 $1.80
D1008 Battery Box — Circuit Board set	set $1.80
D1009 Handrail Wire 20"	Pkt of 10 $3.50
D1010 Handrail Wire 15"	Pkt of 5 $2.00
D1011 Wire for Underbody Detail (handrail) etc	Pkt of 5 $1.80
D1012 Brass Bearings	Pkt of 30 $3.50
D1013 Brass Buffers	Pkt of 20 $2.00
D1014 Bogie Bolster	Pkt of 10 $2.00
D1015 2AA Bogies	Pair $1.40
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D1017 Plastic 10.5mm disc wheels	ea $ .30
D1018 Metal 10.5mm spoked wheels 23.8mm axle	ea $ .95
D1019 Metal 10.5mm disc wheels 23.8mm axle	ea $ .95
D1020/18 Metal 10.5mm spoked wheels 23.8mm axle	Pkt 10 $8.50
D1021/19 Metal 10.5mm disc wheels 23.8mm axle	Pkt 10 $8.50
D1022 Metal 10.5mm spoked wheels 26mm axle	ea $ .95
D1023 Metal 10.5mm disc wheels 26mm axle	ea $ .95
D1024/22 Metal 10.5mm spoked wheels 26mm axle	Pkt 10 $8.50
D1025/23 Metal 10.5mm disc wheels 26mm axle	Pkt 10 $8.50
D1026 Handbrake Handles	Pkt of 30 $3.50
D1027 Brake Cylinder with Tripple Valve	Pkt 6 $2.85
D1028 Load Compensating Cylinder	Pkt 6 $2.85
D1029 Air Tank	Pkt 6 $2.85
D1030 Wagon Ladder (steps, etc.)	Pkt 6 $2.85

DATA SHEETS per sheet $2.00
C36 Roundtop, C36 Belpaire, No.1, U105, NN(1027), C35, D55, D57, C38, AD60, D59, 40 class, 44 class, 48 class, CPH/CTH rail motor, CBC/HX & BWH/RU.

All prices shown are subject to change without notice.

BRASS LOCOMOTIVES

We are taking orders for:-

CASULA C32 class 4-6-0 locomotive, exp Nov/Dec '83
TRAX Z12 class 4-4-0 loco with Baldwin Tender, Dubs or Atlas version, exp Oct '83.
TRAX C34 class 4-6-0 locomotive, exp Feb '84.
BROAD GAUGE MODELS V.R. A² 4-6-0, exp May '83.
BROAD GAUGE MODELS V.R. X class, 2-8-2, exp late '83.
ALCO V.R. T class diesel, exp late '83.
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CHANNELS:-	1/16" (8)	:: 3/32" (8)	:: 1/8" (7)	
I BEAMS:-	1/16" (8)	:: 3/32" (8)	:: 1/8" (7)	
COLUMNS:-	1/16" (8)	:: 3/32" (8)	:: 1/8" (7)	

All the Northeastern range is available through our Import service.

THE VR 'C' VAN'

The second offering in our VR brass, ready-to-run rolling stock programme will be the 'C' guards van. The 'C' Van will be produced for us by THE MODEL COMPANY of New Zealand. It will be available in two versions - with and without the side vision extensions. (These side vision extensions allow the guard to make observations along the side of the train - not just at roof level). The version without the side vision extension has dog box doors. The model will feature many lost wax cast brass detail items. The bogies will be brass castings and will be complete down to the VR on the axle box covers. As with the 'Z' Van, we will market some of the detail items used on the 'C' Van separately. The 'C' Van will be painted and will include decals.

Expected delivery date is August 1983.
Price will be .. .. $89.95.

Production will be limited. Delivery from New Zealand will be on a 'batch' basis with the first 'batch' due in August and subsequent 'batches' to follow at 6 to 8 week intervals. No deposit is required. The 'C' Van will be a perfect 'trailer' for our VR DERM.

THE VR 'Z' VAN

We have asked THE MODEL COMPANY to produce another small batch of 'Z' Vans for us. This will be the last of the 'Z' Vans at the $69.95 price. Any future runs will be at a higher price - so don't delay. Both 4 and 6 wheel versions will be produced.

KADEE COUPLERS:- No 5's - $4.30 per pack. 10 pks $39.00. 25 pks $90.00

We have extended our 'Import-to-Order' service to include the West German firms BEMO HOm (metre gauge) and SOMMERFELDT catenary. Write for details. Catalogues: BEMO .. $4.00. SOMMERFELDT .. $4.00 incl. manual.

THE VR 'C' CLASS DIESEL:- Please note - we have decided NOT to proceed with this model and all deposits have been returned.
THE VR 'DERM':- This model has now sold out, thank you for your support.

PLEASE NOTE A CHANGE OF OUR TRADING HOURS

Our shop at 535 Plenty Road PRESTON will be open at the following times:
Friday 4:00pm to 9:00pm.
Saturday 9:00am to 1:00pm.
Our Mailorder and Import-To-Order service will continue unchanged.

IMPORT-TO-ORDER from WALTHERS

We have now installed a Microfiche reader to enable us to make use of WALTHERS SAS Stock Advisory Service. Each month WALTHERS supply us with information recorded on microfiche which gives complete details, including price changes, expected delivery dates and availability for over 44000 different Model Railway items carried by them. Customers who buy their Walthers Catalogue from McBees also receive (at no charge) the monthly Craft Train News which contains details of new releases etc. All this plus our computer to computer ordering (airfreight from the USA) service gives Australian modelers the same 'freedom of choice' as their US counterparts. Due to the recent and large devaluation of the Australian dollar our price on imported products has increased by about 12.5%

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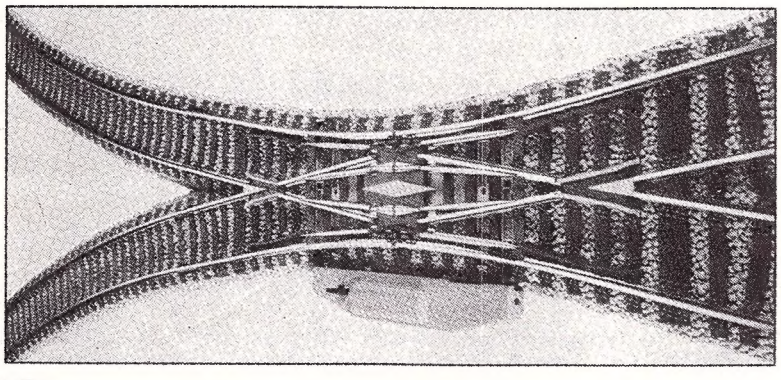
  Write to-day for your copy of full colour catalogue on the FLEISCHMANN system $3.50 posted.

A TESTIMONY FOR FLEISCHMANN EQUIPMENT – Unsolicited.
Recently we had the pleasure of viewing a customers extensive layout in Northern N.S.W. This Modeller built a layout three years ago with equipment from various manufacturers. Not satisfied with the varying degrees of quality and compatability and harrased by faults and failures, he discovered, through the FLEISCHMANN Catalogue, that a complete system was available from one manufacturer. Not only that, it was all available in Australia. The decision was made to change to FLEISCHMANN because of their READY BALLASTED TRACK, the quality of the equipment and availability.
We were happy to receive such unsolicited testimony from a contended modeller.
Stage 1 of the layout consists of a figure 8 multi-level system with rivers, waterfall, sawmill surrounded by finely detailed gorges - Stage 2 is now in progress with a sound timber open frame construction with track laid on 7 ply, thus ensuring super curves and gradients.
With the use of FLEISCHMANN Station Stop No. 6953, Relay No. 6956, Reed switches No. 9425, and Magnet No. 9426 an automatic point to point train is running whilst operator carries out manouveres elsewhere.
All in all a beautiful layout in the making (we believe a 10 year project) and through the use of FLEISCHMANN equipment the ultimate in contentment in modelling is being acheived.
YOU TOO can experience this supreme satisfaction when you buy FLEISCHMANN . . . . . Buy a FLEISCHMANN catalogue for $3.50 posted -



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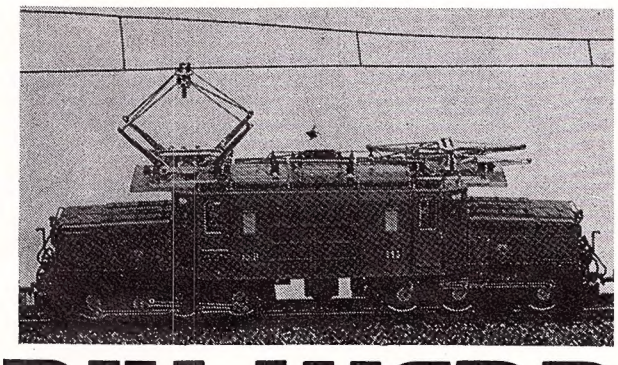

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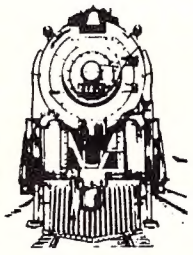

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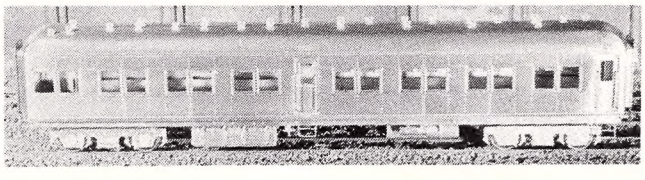
FS/BS



NOW $75.00

BRASS LOCO NEWS: Our C36 Roundboiler is expected in August, price unpainted is $425.00, painted (black only) $460.00. The D55 class is expected about October, price unpainted is $415.00, painted $445.00. All prices are subject to dollar fluctuations.
CPH/CTH is not expected now until early 1984.
Country Customers Please Note: We have a 'same day' mail order service. If your order arrives in the morning mail, we will get it away the same afternoon. That is for normal stock lines of course.

N GAUGE PRODUCTS

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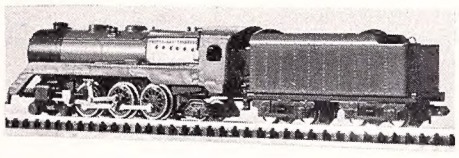
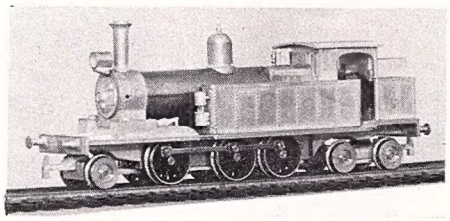


from the 1983 programme



This photo shows the assembled chassis and the main body castings of the Sentinel Z20 Class. Other parts have yet to be fitted.

HO/OO WHEELS

16.5mm gauge Wheel Sets to A.M.R.A. standards. Nickel silver tyres and stainless steel pin point axles.

9271 8-spoke, 10.5mm diameter
9272 Disc Wheels, 10.5mm diameter
9275 Disc Wheels, 9mm diameter, suit 'Rivarossi' & 'Roundhouse' US bogies.

$2.40 2 axle set

** ** ** ** ** ** ** ** ** ** ** ** **

A limited number of Sentinel 1 foot radius N gauge points is now available.

No. 3791 Right Hand
No. 3792 Left Hand

$5.95 each

This is a last chance offer as these points are no longer in production.

HO Scale
N.S.W. Z20 LOCO KIT

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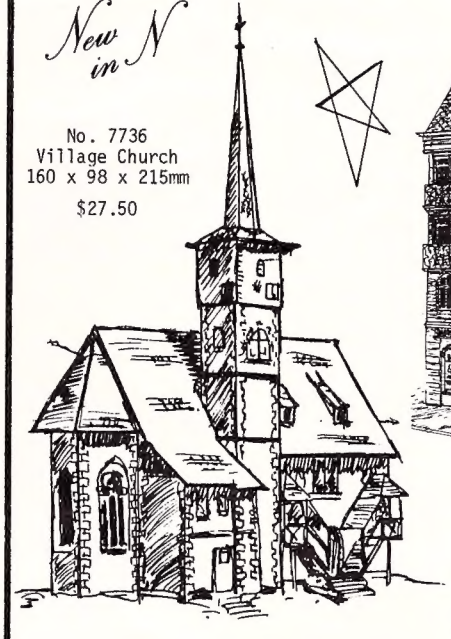

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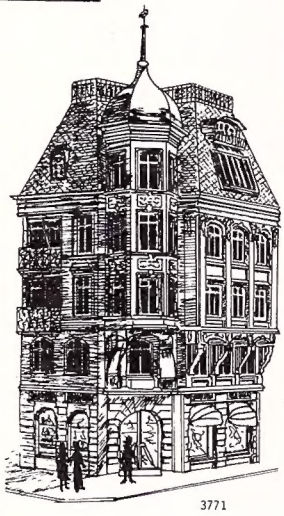

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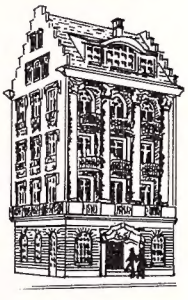

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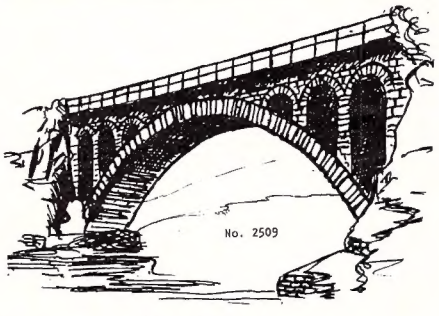

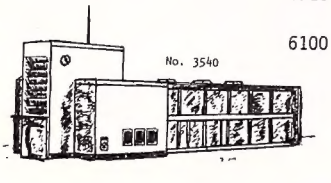

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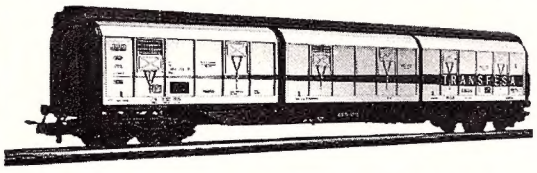

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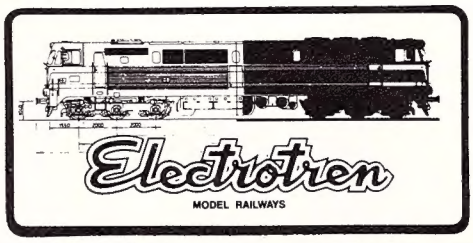

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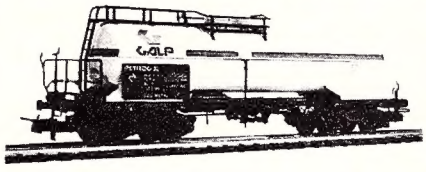

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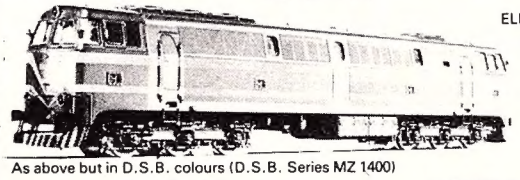

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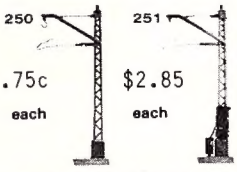

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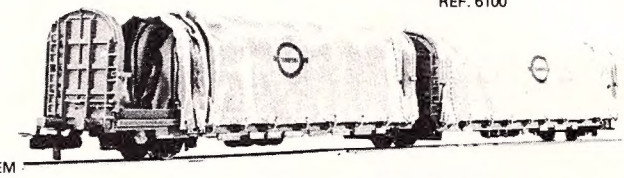

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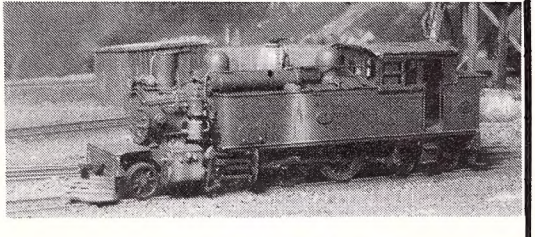

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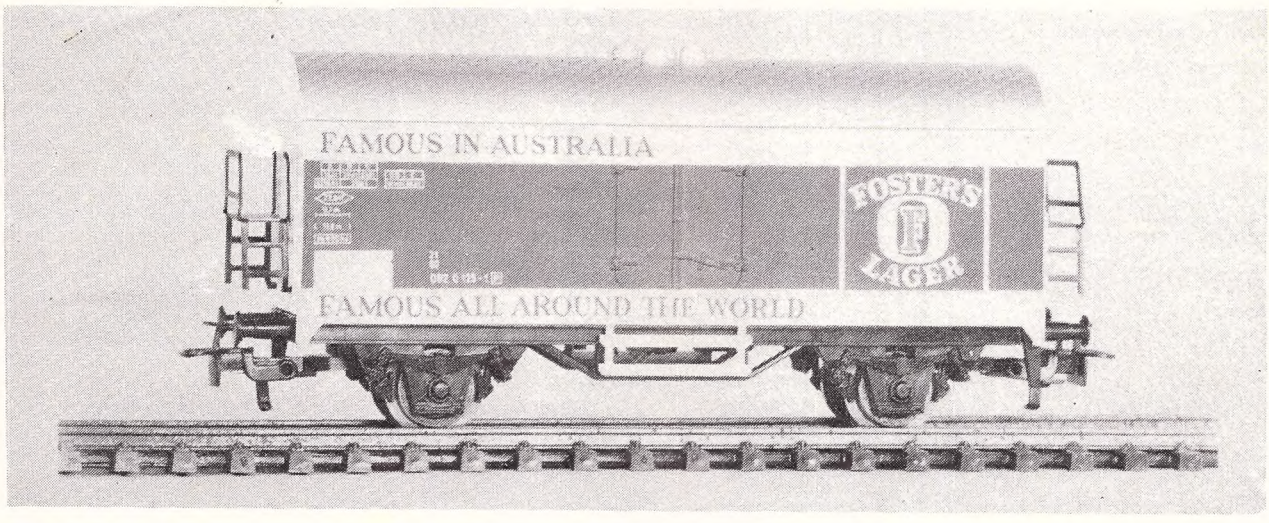

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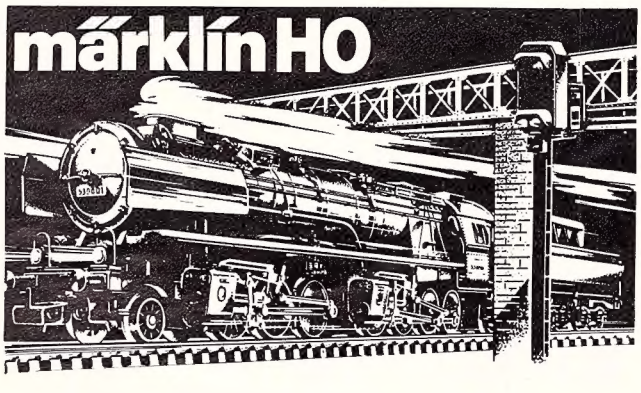

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CASTLE HILL — N.S.W. July 16, 17 at the Castle Hill Community Centre, Old Northern Road, Castle Hill. Open 9am-5pm. Admission $2/50c, family $5. Organised by the 4th Castle Hill Scouts.

CROYDON — Victoria. August 27, 28 1983 at Maroondah High School Gymnasium, Maroondah Highway, Croydon. Open 9am-8pm. Exhibition includes competition. Organised by the Croydon Model Railway Club. Further details, (03) 725 6798 or (03) 657 2375.

BUNBURY — Western Australia. September 4, 5 1983 at the Bunbury Police and Citizens Youth Club. Further details from Secretary PO Box 121, Bunbury 6230. Organised by the City of Bunbury Lions Club.

GOSFORD — N.S.W. September 17, 18 at the Gosford Primary School. Open 9am-6pm (Sat), 9am-4pm (Sun). Proceeds to aid the Central Coast Branch of the Smith Family.

SYDNEY — N.S.W. October 1, 2, 3 1983 at the Royal Agricultural Showgrounds, Driver Avenue, Moore Park. Open 10am-8.30pm (Sat), 10am-6pm (Sun, Mon). Admission $3/$1. Organised by the N.S.W. Branch of the Australian Model Railway Association.

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COMMENT

MORE LAYOUT IN LESS SPACE
. . . a Possibility?

In previous Editorials I've made a few predictions for the Hobby in Australia, based on events overseas. So far they've been (a) a trend toward making our layouts look and run more realistically; and (b) modelling a specific year or era such that anything more modern doesn't run.

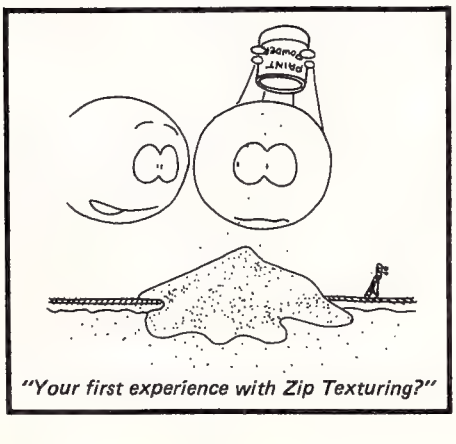
What about the layout itself? The restriction in home and room sizes has brought different approaches in Britain and the USA. British modellers appear to favour a well detailed station with a 'fiddle yard' hidden behind. This style is often seen at the larger Australian exhibitions and is certainly workable. The Americans still want to have several stations with a large run between them. If the room gets smaller and the scale doesn't change, it leaves just one choice . . . a multi level layout. A favourite of Alan Armitage for many years, we now see a trickle of layouts under construction appearing in the magazines. The transfer position from one level to another thirty centimetres above presents a problem for scenic detail and methods of disguising this changeover are at times quite innovative and make the idea worth considering.

At present the British style appears more popular locally, especially in areas having regular exhibitions. Whether the multi-level layout becomes more popular is not easy to predict. The concept certainly appears workable.

What about N scale? Originally it seemed to be the answer to the space problem. "Twice as much railway in the same space" was a common selling point, especially if you wanted a tin of worms. I've now seen two N scale layouts which have changed my opinion of N and they were both in Victoria. They chose 'same track in same space' which, compared with HO scale, means same track with twice as much scenery. The effect of realistic scenic space around the train resembled watching a railway from a low hilltop about half a kilometer away. By comparison, HO scale is like watching from the station entrance. You tend to notice details rather than the overall view of the N scale layouts.

Thank you 'Wallan' for pointing the way to N scale's possible future.

Phil Curnow.



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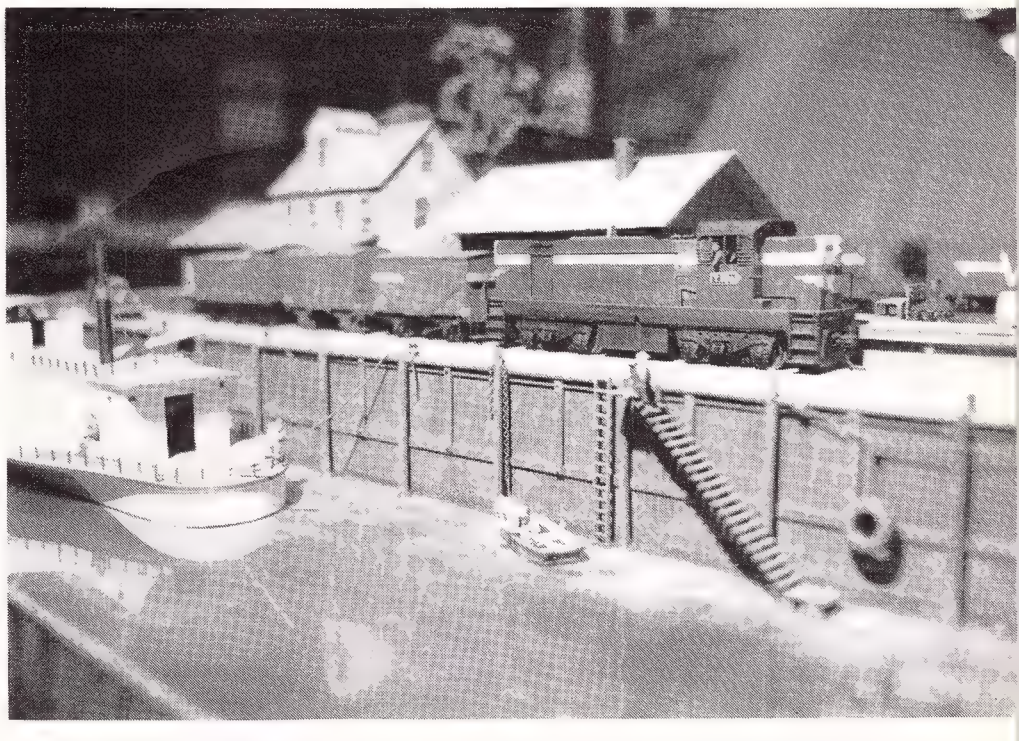


ON THE COVER

After an engine change at East Tamar Junction on 26 January 1983, Australian National Tasmanian Region locomotive ZA1 slowly hauls air-braked log train LT4 upgrade under the Vermont Road overpass, Launceston deviation, on the last stage of the train's journey to Longreach. Photo by Michael Dix.

T358 shunts wagons in the wharf area at Portland. The photo illustrates a scene on Peter Eisenhut's layout. The 'T' class has a scratchbuilt body with Athearn louvres and headlights. While the underframe is from an Athearn SD-9, the bogie sideframes have been replaced and the fueltank reworked.

PAGE TWELVE

This issue **PAGE TWELVE** features models built by members of the Victorian Model Railway Society (V.M.R.S.). The V.M.R.S. encourages model building by promoting competitions among members. The general modelling standard of V.M.R.S. members is very high, some members' models taking top awards in major Australian competitions.

Photographs by Peter Eisenhut.

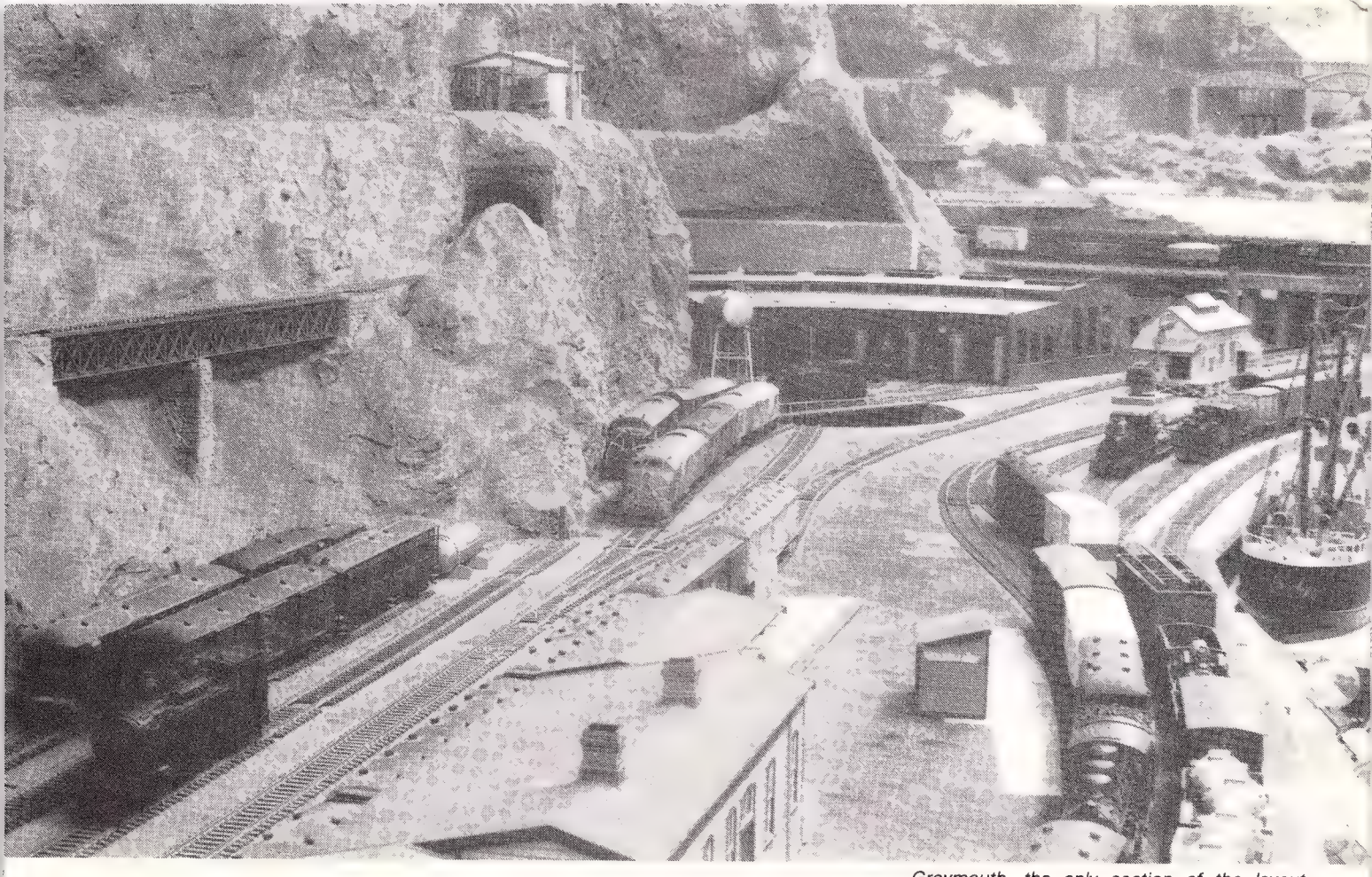
Above Left: *'ELX 81', an 'O' scale model built by Harry Bender. This ¼" scale model was photographed on the V.M.R.S. 'O' scale layout. The model was constructed from pressed copper, using a home made pressing tool. Detail work and underframe was constructed from tinplate. The bogie sideframes, wheel sets and couplers were also hand built by Harry. This model won first prize in the 1981 V.M.R.S. competition.*

Left: *'JX 37', an HO scale V.R. cement hopper built by Peter Eisenhut. Tanks were cast in one-piece epoxy-resin with a cast-in balsa section, helping to reduce weight. The underframe was built up from 20 thou styrene, roofwalk is from E & B Valley Models. Floquil Boxcar Red was used to paint the model while real cement was used as a weathering medium.*

Billboard 'U' vans, HO scale models scratch built by Graeme Brown. The van bodies were built from Northeastern clapboard siding, the underframes from sheet styrene with cast metal axle guards. The signs were hand painted using Floquil Polly-S colours, applied with mapping pen and fine brush. The photograph was taken in 'Woodend' yard; another fine model by Graeme Brown.

'T 411', a third series V.R. 'T' class diesel built in 'O' scale by Harry Bender. The model was built in 1972 from brass. Castings for the sprung bogies, sand boxes and couplers were produced in silicon rubber moulds, from styrene patterns. The drive consists of a 24 volt motor in the long hood driving a 1:1 gear train to worm drives on each axle, coupled by universals. Photo by Graham Ball.

Well known AMRM author Frank Kelly built this 4mm scale model of the V.R. 'L' class, the prototype of which was introduced in 1861. The model was fabricated from brass sheet, using Hamblings nickel silver tyred drivers and Romford pony wheels. Power is supplied by a Sagami can motor, mounted backwards so that the flywheel is hidden inside the saddle tank and cannot interfere with the boiler backhead detail. The loco is finished in a two tone green livery as used up to 1906, prior to the Canadian Red colour scheme. The model was photographed on the V.M.R.S. 'Malmsbury' layout.



Greymouth, the only section of the layout under chest height. This photo illustates some of the features of this layout. Down low of course is Greymouth, including dock scene, loco depot and freight handling area. On the right are two levels of the road that winds around the room linking the various yards together. Behind, but slightly above the round-house, is Brunner, a small terminal station that creates revenue for the system. Way back up high are some of the bridges and viaducts that make up the return loops. Some wild under-growth is visible on part of the unfinished scenery.

A MODEL RAILWAY LAYOUT
NEW ZEALAND STYLE

A brief coverage of John Agnew's fine New Zealand Railway prototype layout.
Description and photographs by Bob Gallagher.

Modellers, no matter what their prototypical persuasion, always appear to fall back on the prototype for inspiration when building a layout. To this end many modellers base their layouts on specific locations, scaling down the distances to fit the space available.

John Agnew, of Auckland, New Zealand, is one such modeller. His prototype inspiration came from the roughest terrain in the country, but he refused to be bound by normal space limitations as sections of track leave and re-enter the train room seemingly at will.

The overall result is a layout that has plenty of track and the prospect of spectacular scenery.

The layout is based on the Southern New Zealand Alps, focusing on the Otira tunnel and the Western scenery down to the sea at Greymouth. The models are N.Z.R., Sn3½ scale of course.

John, in his spare time, produces the Railmaster range of N.Z.R. Sn3½ scale kits and, as such, has at his hands a wide selection of locomotive and rolling stock kits from which to draw the roster for the layout. The layout however, has a set period, and models used on the layout are only those which were in use during the period.

English Electric 'DG' class locomotives. These are Railmaster kits built up and painted by John. The original and new colour schemes are illustrated here. The old N.Z.R. livery, in the rear, was a deep red and grey, while the new livery on the 'DG' class is international orange and grey.

The Layout.

Unfortunately this article is but a brief resume of what is, or what will be a very impressive layout. The visit to the layout was too brief, and N.Z. is a bit too far for another quick trip.

Most of the track is at eye level or higher, and that makes photography difficult. At the time of the visit the scenery was still taking shape, also restricting photography.

Basically the layout, via the use of return loops, is point to point. Starting at the sea port, based on Greymouth, the track winds its way around the room and upward, through tunnels, cuttings, an interchange station, along the side of a deep gorge, through a return loop and back down again.

Steam, diesel and electric power is used to run the system. True to N.Z.R. style the electric traction is used over the steepest sections that, co-incidently, are in tunnels. This represents the Otira tunnel. Wayside stations generate traffic to intensify operation.

The main exchange yard, Otira Station, where electric traction takes over from steam or diesel power, is on a very steep grade. To enable single wagons to be parked without fear of a runaway, special checks have been built into the track to restrict wagon movement. The checks take the form of springs against the inside of the rail. The checks stop

Greymouth Loco, displaying scratchbuilt locomotives and structure. The loco on the turntable is Ab 808, which was scratchbuilt by Paul Berntsen. The turntable is also scratchbuilt .

wagons from rolling, but allow flawless running when the wagons are loco hauled.

This station is where, in real life, electric locomotives are used to haul trains through a steep, lengthy tunnel. N.Z.R. has (or had) a few similarly isolated sections that used electric traction, and used locomotives specifically designed to work a designated section. Like most electric locomotives, all are of the box style, and to many unattractive. The differences, however, appear to be a challenge that many N.Z.R. modellers such as John accept, with remarkable success.

John's layout only has one interchange, where the trains are dispatched out through the tunnels, along the side of the gorge and back into the interchange, but the length of time the train takes to cover the movement is considerable and as such does not detract from realistic operation.

The Scenery.

While the scenery was incomplete at the time of the visit, the basic formation and shell was in place, linking the various stations and many bridges together.

Plaster was the main scenery medium, while lichen and coloured teased underfelt was used to represent the dense New Zealand undergrowth.

Only a few structures were in place, but those visible showed a high degree of detail and a remarkable likeness to New Zealand buildings.

The Models.

There is little doubt that John is a very skilful modeller and his models reflect this talent by the trueness to the prototype, high degree of detail and the fine finish on the vehicles, which often includes weathering.

The fact that John can draw on the Railmaster range of kits no doubt answers any questions as to how so many pieces of rolling stock of N.Z.R. prototype could be on one layout. The layout certainly looked busy.

Conclusion.

Unfortunately the visit to John's layout was brief. Despite this the visual effect of this layout will remain pleasantly in my memory for a long time. The blending of prototype to model was remarkable, especially when the size of the layout room is considered.

Regrettably there are not enough photographs to effectively illustrate the layout and show its finer points. Another trip to New Zealand would help solve the problem. Does anyone have a return air ticket to spare?

In the days of steam, and the early days of the diesel electric locomotive, movement of farm stock was an important task for the New Zealand Railways. Unfortunately that is not the case anymore, and stock movement on the N.Z.R. is very unusual, if not rare. Model railways, however, are not bound by Government decisions or economic means, and modellers can run vehicles to their desire. John has a large range of stock wagons, drawn from the range of Railmaster kits.

The above photo illustrates four different stock wagons; four wheel cattle wagons H480 and H588, bogie sheep wagon S130, and J4271, a four wheel sheep wagon.

The photo below shows another string of stock wagons. S class bogie sheep wagon, J class four wheel sheep wagons and H class, four wheel cattle wagons. Note the differences between class members. The differences may be subtle, but that is part of the model railway art of difference by detail.

A much used WW 684 awaits further duty in Greymouth yard. This 4-6-4 loco, scratchbuilt by John, is a reboilered version, which was used for Rewanui Incline duties, as well all over New Zealand for general traffic.

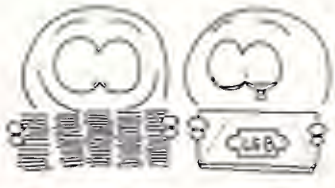
W 192, a 2-6-2 tank loco, used generally on incline workings, up to the mines. The W class was the first built by the N.Z.R. W 192, the model, was scratchbuilt by John Agnew. The photographs of the W and WW illustrate the benefit of Gn3½ scale, where almost every item of detail is possible to include, while still restricting the overall size of the model.

Acknowledgements.

A special thanks to John Agnew for allowing the A.M.R.M. to visit a few days before a convention in which he was involved.

Thanks also to Graham Selman for the organisation and chauffeuring, and to Justine for being so understanding when we arrived a few hours late for tea. (A usual problem when a good layout is being visited.)

Finally, thanks to Es Davies, who acted as bagman, flash holder and generally helped set up some of the shots. ▪



"When volume of money equals volume of locomotive you are clear to proceed."

Station Master's residence at Brunner. The structure includes fencing, outbuildings and figures and was painted in true-to-prototype colours. This collection of structures was built by Bob Stott, a bush tram enthusiast and model builder extraordinaire. A.M.R.M. will feature Bob Stott's layout in a future issue.

Figure 1. LBK 87 car. Photo by courtesy of S.R.A. of N.S.W.

N.S.W.R. MEDICAL SERVICE CAR

Ken Dunkley describes the kitbash of a Roundhouse 50′ passenger kit into a Far West Children's Health Scheme car.

Introduction.

The railways (and rivers) provided the skeleton on which early development of Australia was built. Civic fathers clamoured to have the newly spreading railways built through their town, seeing it bringing better communications, better trade, easier shipment of that town's produce, etc.

No doubt one of the benefits brought by the railways was better access to the medical facilities available miles away "in the big smoke". To provide health care to the rural areas, the railways and a variety of medical service cars that could take medical expertise to country areas. These were generally older passenger cars suitably altered to suit their new function. These cars would be taken to a convenient town and left there for a short while for the local people to benefit from the health care being offered.

The Project.

This kitbashing project attempts to produce a car similar to those early cars. I do not claim it to be an identical replica of any particular vehicle but since there seems to have been a wide variety, it is likely that an identical car did exist. In general however, it is based on the Far West Children's Health Car that the N.S.W.G.R. operated and which was itself a converted FA car. It is really a fairly simple project, suitable for a first attempt at kit bashing or working in styrene. Materials required are:—

Roundhouse 50′ Sleeping Car Kit No. 5001
Styrene sheet .010″, .020″, .030″ thick
2 sheets of Mn'J decals No. 9102
Fuse wire and some clean white bond typing paper
Floquil Barrier
" Antique White
" Burlington Northern Green
Humbrol Gloss No 6 Brown
Testors Dull Coat
Floquil Black
" Dust

I have divided the project into 4 stages.

Stage 1. Rework the body
2. Rework the roof
3. Rework the underframe and bogies
4. Painting and lettering.

Steps are numbered to correspond to figure 2. Note also that all dimensions are in millimetres except for sheet styrene thickness which is in inches as it still seems to be supplied that way.

Stage 1. Rework the Body.

The crownlights and four windows on one side are to be blanked. Cut eleven 6.2 x 3.5mm rectangles of .020″ styrene, lightly radius two corners on 6.2mm side and check fit them in the windows to blank the crownlights. When trimmed to fit nicely, refer to fig. 1. and bond in place with M.E.K. applied sparingly on the inside. Similarly refer to fig. 1. and completely blank the four windows with 6.2 x 9.5 x .020″ pieces of styrene.

I did not have a photo of the other side of the car so a little "imagineering" was applied based on some interior photos that could be reproduced for this article. I blanked the first two windows in from each end and the end window adjacent. All these 6 windows require 6.2 x 9.5mm blanks again.

The Roundhouse body has a nice ellipse moulded on each side at mid length. Use a new sharp Stanley knife and carefully shave it off and finish with a light sanding. Several very thin .25 x .25mm (or .010″ x .010″ square) strips of styrene were cut and carefully glued in place under the window line to match the vertical moulding on the rest of the car. The best technique here seems to be to hold the strip with one end under the window line and apply a drop of M.E.K. Hold it for a few seconds and then carefully lay the rest down the side of the car. Quickly position with a metal probe, apply another drop of M.E.K. and check for squareness.

This completes work on the body for the moment. It should now look like fig. 3.

Stage 2. Rework the Roof.

The canopied end of the roof needs changing rather drastically. I tackled each end in 2 stages.

First, using a razor saw and working from underneath towards the top, cut off the ends level with the locating flange on both sides. Two pieces of 38 x 13mm styrene .020″ thick were cut for each end. The end has to be horizontal rather than curved down. Carefully roll these between the fingers or over the edge of the table to give them a curved shape. Check these against the original roof for correct contour and then, using M.E.K., butt joint one piece onto the original roof. Since this new section is thinner than the original, it must be flush with the top surface of the original roof. Allow this to dry for a while, continually checking to make sure it stays in line with the original roof. Then laminate the second piece of styrene under the first, bonding the two together with M.E.K. Set the roof aside for at least 24 hours for all joints to thoroughly harden. Trim the edges to be flush with the original sides and their ends to match the contour of the base.

Next the clestory has to be made "square ended". Using a razor saw cut vertically down 24.5mm in from the new end you have just added. Be careful not to mark the top surfaces of the roof. Cut horizontally along through each side parallel to the roof. This should allow the curved end of the clestory to come out leaving a hole. The hardest part of the whole project follows. Carefully trim a piece of .020″ thick styrene 22mm wide by 6mm high to the profile of the roof. The lower edge needs to be radiused to fit down snugly on the new roof end while the top must match the wavy shape of the clestory. Bond this in place right on the edge of the new roof added in (4) above. Fill in both vertical sides between the new and the original clestory sides with 12 x 3.5mm pieces of styrene. Lay a flat piece of 22 x 12mm styrene .040″ thick across the sides between the new and the original roof. On top of this laminate 2 or 3 pieces of 15 x 12mm styrene to fill up the original roof profile. Having joined all this together with M.E.K. and ensured it is all square, straight and true, leave it aside for at least 24 hours to thoroughly harden.

When dry, carefully file the centre of the laminate down to the correct profile. Finish off with fine glass paper. All edges of the new roof end should be smoothly jointed to the original roof.

The roof ventilation may now be fitted.

The last alteration to the roof is to fill in the clestory windows. Cut two 15 x 4mm strips of .020″ styrene and bond inside the windows. I added ventilators at four places on each side made from styrene scrap 4.5 x 3mm wide and .060″ thick and filed into a half round shape.

Figure 4. shows the roof with one end of the clestory finished and the blank strip made for the clestory windows.

Stage 3. The Underframe and Bogies.

The kit comes with queen posts that allow 2 truss rods per side. Thread is supplied for the truss rods. To allow more suitable underframe structure cut off the outer queen posts and carefully bend new truss rods from .020″ diameter wire. The wire should be pulled up through the underframe and bent over. By careful manipulation the wire can be made to sit down tightly on the queen posts and be tight through

the underframe. A drop of model aeroplane cement on top of the queen posts and then some more where the wire bends over the top of the underframe will hold the wire in place. The weights which fit on the top of the underframe may need a piece cut out of them to clear the wire truss rods.

The steps at each end should be removed by cutting across underneath the underframe. After cleaning up rough edges, etc. the resultant hole in the floor at each end platform is filled with .030" styrene. Make the buffer beams deeper by laminating 2 pieces of .040" styrene 36mm wide by 3.5mm front-to-back under each end sill. After bonding in place with M.E.K. and leaving for 24 hours to dry, trim to the shape of the existing buffer beam.

Make steps at each corner with two side members 2.5mm wide by 7mm high with 2 steps 4mm wide by 7.5mm wide.

Figure 5 shows the underside of the underframe with buffer in place.

Use buffers of your choice. I used some Protype buffers I had. Locate the buffers in the middle of the buffer beam and 9.5mm off each side of the centre line.

At this time make provision for couplers of your choice. I fitted Kadee 5's by cutting a neat slot through the buffer beam.

Additional underflow detail can now be added. I fitted one tool box and one water tank from the kit. A large water tank is needed; Make one from 8mm dia. styrene rod 50mm long. Add rivet details if you like and make a bracket to hold the tank in place. The best approach is to apply a little imagination and add boxes, tanks and pipes to suit your own taste.

Stage 4. Detailing and Painting.

Striped curtains need to be made for one side. Use some white bond paper and apply

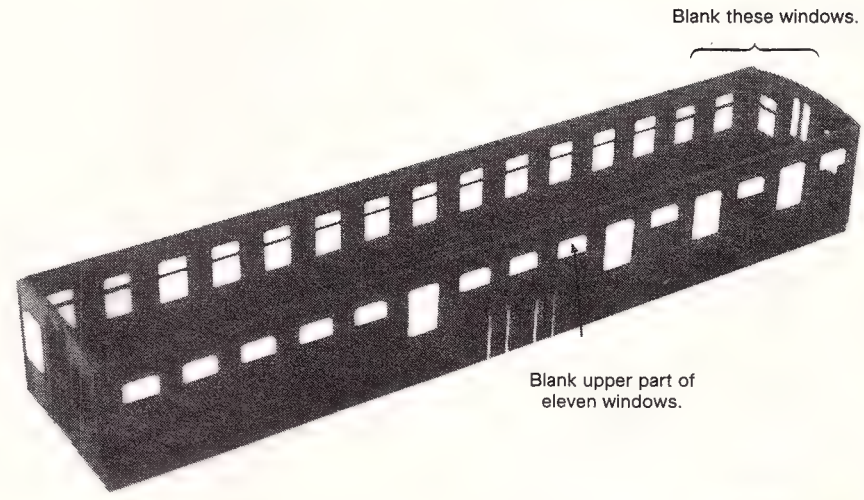


Fig. 3.

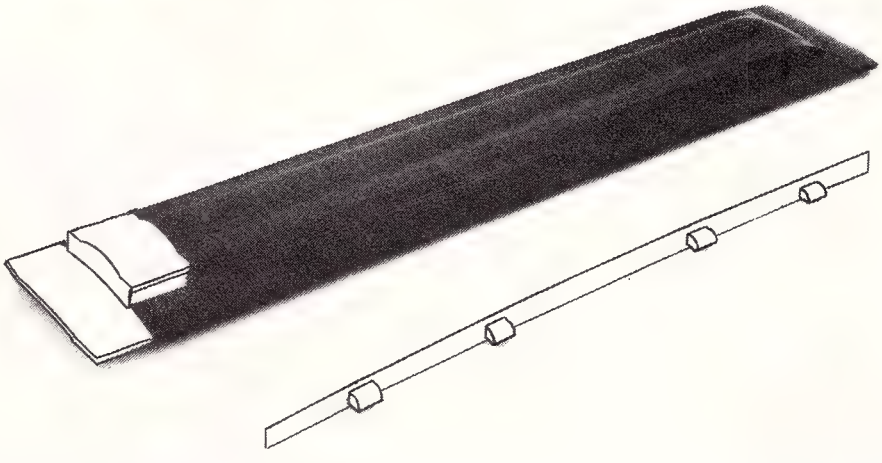
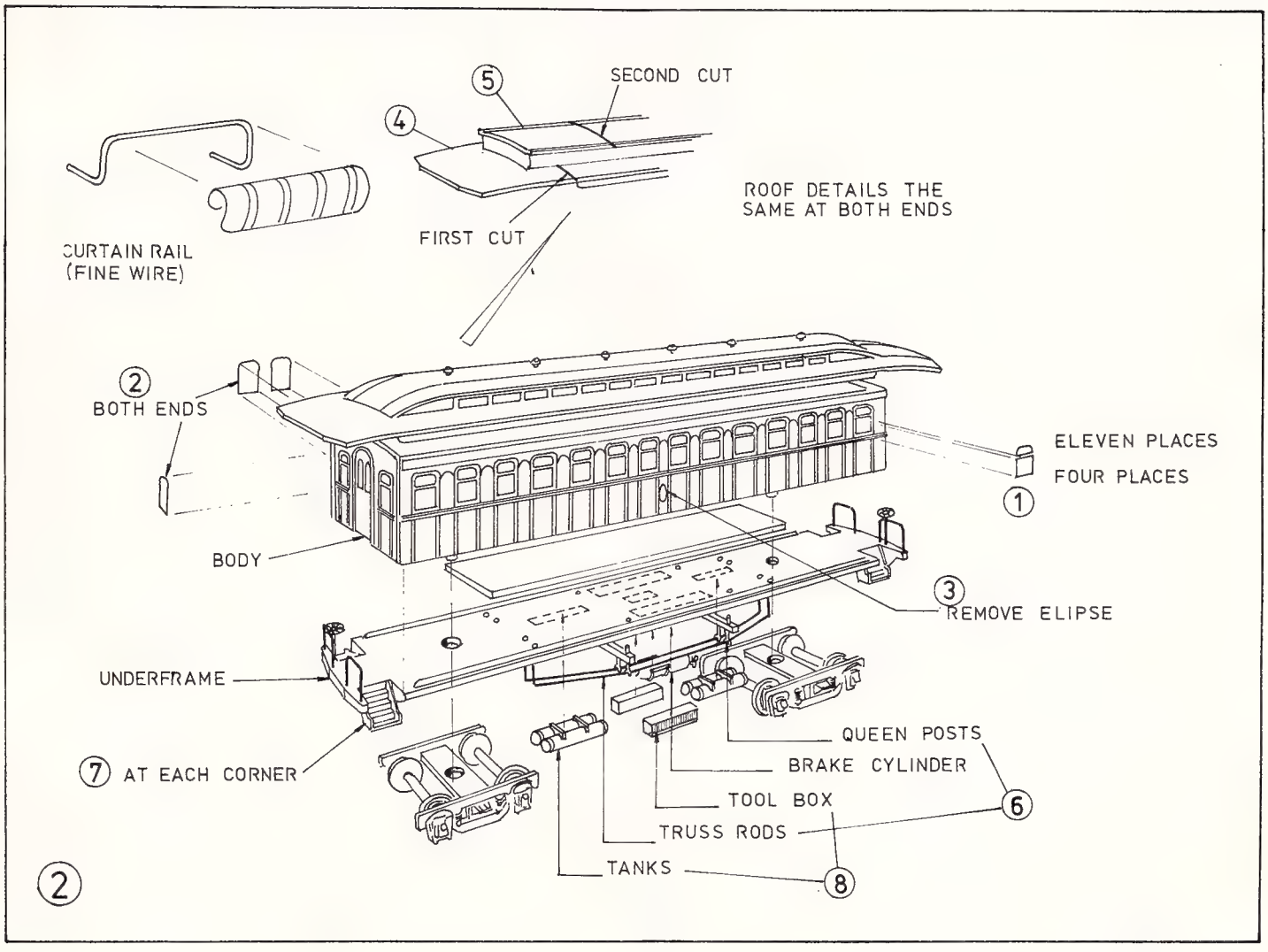


Fig. 4.



green stripes with a felt tip pen. Bend curtain rails from suitable wire to the shape shown in fig. 2. Drill holes to just clear the wire diameter through the body side about ⅓ of the way down the top of the window. I used .020" diameter fuse wire. Wrap curtain around the curtain rail and bond with your favourite brand of super glue. Lay the curtain aside until the painting is finished.

Thoroughly wash all parts to be painted with warm water and detergent. Allow to dry. Air brush all parts of the body, roof, and underframe with Testors Barrier and allow to dry thoroughly.

The body.

Airbrush the body inside and out with Testors Antique White and allow to dry thoroughly. Be patient; let it take a week if necessary. Carefully mask off the ends and the windows area with Magic Mending (masking) tape but don't press it down very hard. The upper and lower areas of the side are airbrushed with Floquil Burlington Northern Green. After a day or so, carefully peel the mask-tape off by pulling back through a sharp 180° bend.

The decals (all 162 of them) were cut from Mn'J decals sheet No. 9102. Application is a bit time consuming, but worth it. To get them exactly in the middle of the side start from the centre letter of the words FAR WEST CHILDREN'S HEALTH SCHEME which is the N in "childrens" and then work each way forward and backwards. The same goes for the "TRAVELLING HEALTH CAR" sign. The sharp eyed will note that the prototype photo shows nurse in charge was Sister M. White. A nice piece of domestic diplomacy is the use of the name of your wife, sister, girlfriend, mother, daughter, etc. as the nurse in charge.

Apply Decal Solvaset very, very sparingly to the edges of all decals and let them dry. An even coat of Testors Dull Coat will hide the decal film.

The Roof.

Airbrush the roof top with Humbrol No. 6. Brown thinned with 50% turps. Two or three coats may be necessary to get good colour. Scrape off any overspray on the underside, particularly at the canopy ends, and then brush with Floquil Antique White. A coat of Floquil Dull Coat will give the roof a nice clean, but dull coat.

The Underframe and Bogies.

The underframe and bogies can now be sprayed with your favourite brand of black/grey to similate a clean but slightly used car. A very light coat of Floquil Dust will help bring out detail around the bogies and underbody equipment.

The car needs to look clean (it is after all a medical facility) but used.

Final Assembly.

Add window material, bonding in place with M.E.K. Fit the curtain and secure on the inside with super glue. Assemble the hand rail and brake wheel details on each platform. Screw the bogies and underbody to the body proper. Now is the time to add interior detail if you wish. I simply added some interior partitions so it was not possible to see straight through. Then glue the roof in place.

On the Road.

The car is now finished and ready to bring medical help to the little people on your layout. The car can be marshalled on a way freight to add a little more shunting interest at the country town or just left parked in a strategic siding on the layout as a talking point.

So there it is. Good luck with your medical car and good modelling.

All photos by author except where credited.

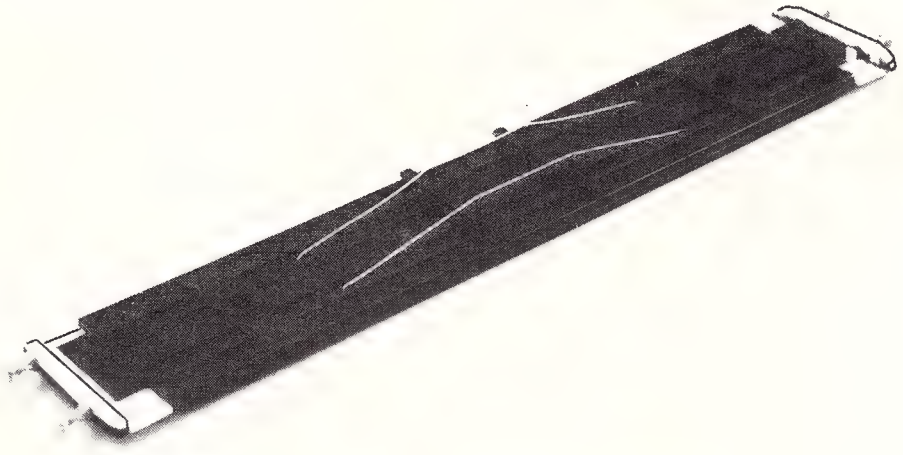


Fig. 5.

The finished Health Car. Photo: Jack Parker

SOME USES FOR DIODES

To prevent a locomotive from running off the end of the track at a terminal station, a loco storage yard, etc., a gap is made in one rail, a distance far enough from the end of the track to accommodate the longest loco likely to use it, and connect a DIODE across the gap. (Fig.1)

A switch may be connected in the circuit to control the end section of the track. (Fig.2)

Operation

a. A loco running towards end of track will stop after it passes gap in rail, without altering controller (if one doesn't, reverse DIODE connections).

b. Loco may be reversed out by operating controller in reverse position, as DIODE conducts electricity only in one direction.

c. With the switch OFF, the end section of track is isolated, allowing for another loco to use the rest of the track in either direction.

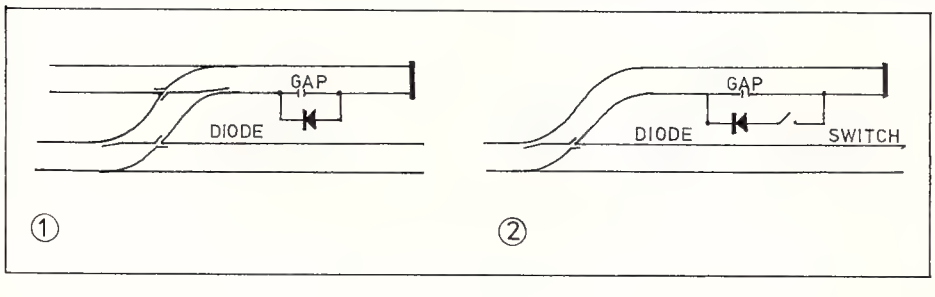
d. With the switch ON, the loco in the end section may be reversed out.

NOTE. Loco will not run off end of track, and stops after passing gap, regardless of position of switch.

DIODE. Any diode with 1 amp carrying capacity and 100 PIV (Peak Inverse Voltage) is suitable, and is available from most Radio and Electronic parts retailers (Tandy or Dick Smith's).

SWITCH. Any ON — OFF switch of 1 amp rating is suitable.

C.H.Prior.



The proprietors of Appollo Scale Models wish to sincerely apologise to any customers or suppliers who may have been inconvenienced by our sudden cessation of business.

This action was necessitated by extreme family commitments which required an interstate move at very short notice.

Please address and enquiries to A.S.M., c/- Post Office, Mt. Pritchard. 2170. NSW.

Col & Chris Rough.

The **October 1983** issue of the **Australian MODEL RAILWAY Magazine** should be available after September 16, 1983 — *Ed.*

TASMANIA'S FP CLASS PINE LOG WAGONS

Plan by Tony Parnell
Text by Michael Dix
Photos by Michael Dix unless noted

The FP classification covers 39 steel bogie pine log wagons converted by the Tasmanian Region, Australian National Railways, from existing wagons of the KKD and FFF classifications in 1978 and 1980. The wagons were required for the carriage of pine log thinnings from Blumont, near Scottsdale in north-east Tasmania, to the Australian Newsprint Mills Ltd paper mill at Boyer in southern Tasmania, where the wood replaced some previously imported softwood in the manufacture of newsprint. This traffic was later extended to include some loading at Fingal, cut from pine plantations in the Mathinna-Fingal area. There are currently (November 1982) about 280 wagon loads per month from Blumont and about 20 per month from Fingal, although this number fluctuates widely according to demand.

KKD CLASS.

Seventy second-hand bogie wagons were purchased by the Tasmanian Government Railways from the Commonwealth Land Transport Board in 1944 and were placed in service between August and December of that year. The underframes of these wagons were built at the Newport Workshops of the Victorian Railways, with the wooden decking applied by the Commonwealth Railways. The wagons were numbered KKD 1-70 and were put into service mainly carrying pulpwood for the Associated Pulp and Paper Manufacturers paper mill at Burnie. KKD 1-45 inclusive were initially allotted to APPM for use in the transport of pulpwood, clay and other traffic as required to South Burnie and were not to be used for general traffic. The remaining wagons (KKD 46-70) were available for general use.

The KKD class remained intact until August 1969, when six wagons were sold to APPM (these wagons eventually found their way to the Emu Bay Railway where they became EBR's FG class in 1981), although three wagons (68-70) had previously been converted to log wagons and classified FFK in 1958, reverting to standard KKD wagons in 1962. KKD 47 was fitted with standard 31t bogies on 17/10/73 and reclassified FD 1. With conversions and write-offs, there are now (at 1/3/83) only 12 KKD wagons remaining, although the official number on register is 16. The dispersal of the class is shown in Table 1. The remaining KKD wagons are now used mainly for the transport of zinc ingots from Risdon to Burnie, the carriage of malt containers to Hobart, or the transport of bagged limestone on pallets from Mole Creek.

TABLE 1 — STATUS OF KKD CLASS, 1/3/83

	No.	Remarks
Wagons in service or stored	12	
Converted to FP class	34	
Converted to FD class	1	KKD 47
Sold to APPM (7/8/69)	6	KKD 21, 31, 33, 43, 52, 67
Written-off	13	
Scrapped but not written-off	4	KKD 10, 25, 49, 60
Total	70	

FP CLASS.

The 39 wagons of this classification comprise 34 converted from KKD class wagons and 5 converted from the 12.2m (40') series of FFF class wagons (Table 2). A further two wagons, FFF 32 and FFF 34, were converted for pine log traffic on 8/8/80 but retained their buffers, screw couplers and 31t bogies and were not reclassified FP.

Non-block pine log wagon FFF 34 at Hobart, August 1980. Note that this wagon is fitted with buffers and standard 31t bogies.

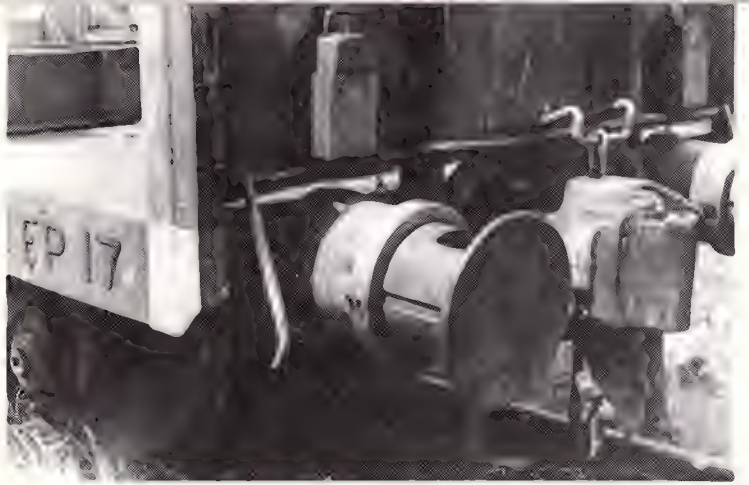
Wooden-decked flat wagon KKD 68 at Derwent Park. The unusual low location of the vacuum pipe on this wagon is a result of its conversion to a log wagon between 1958 and 1962.

KKD Conversions.

The conversion of the KKD wagons involved major modifications and produced a structurally stronger wagon. The underframe of the KKD comprised four longitudinal 230 x 75mm steel sections which, combined with a wooden deck, resulted in a wagon with excessive vertical flexibility. To stiffen the wagons, 155 x 100mm steel sections were bolted to the two central steel members and a plate steel deck replaced the wooden deck. The standard screw drawgear was replaced by automatic couplers on all wagons, dual vacuum brake pipes were fitted at each end of the wagon and the non-standard 27t KKD-type bogies were replaced by the standard Commonwealth Railways A3 roller bearing bogie.

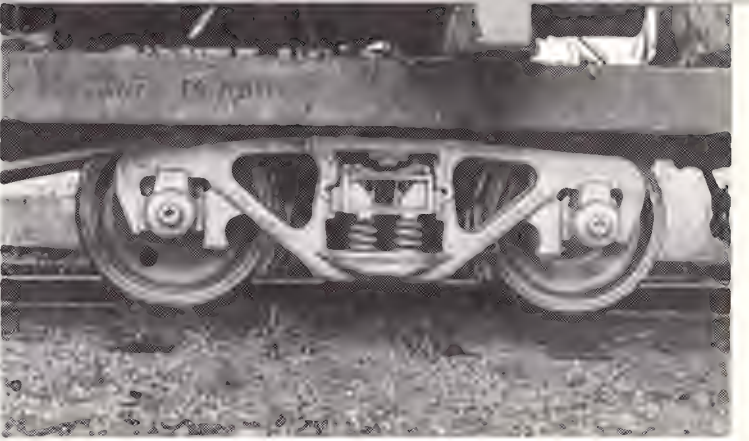
The handbrake wheel was removed from the end of the wagon and replaced at a more central location on each side of the wagon. To carry the logs, four log cradles were bolted to the wagon deck. These were manufactured as a complete fixed unit and differed from those on the earlier FE class log wagon which had movable stanchions. However, the stanchions were not strong enough in traffic and all were subsequently strengthened. Recesses 550 x 295mm were cut in the deck in which chains for load binding were attached and were stored when not in use.

As screw couplers and buffers were still standard on the Tasmanian system when these wagons were converted, the wagons were run in blocks, with a transition wagon at each end. The ten transition wagons are easily identified, as they retained the vertical end of the KKD wagon on the transition coupler end of the



Retractable buffers are fitted to the transition coupled wagons. When the buffers are required, the blocks, shown here stored in their receptacles, are fitted in the hole in the buffer shank.

Load binder recess and load binder, FP 17.

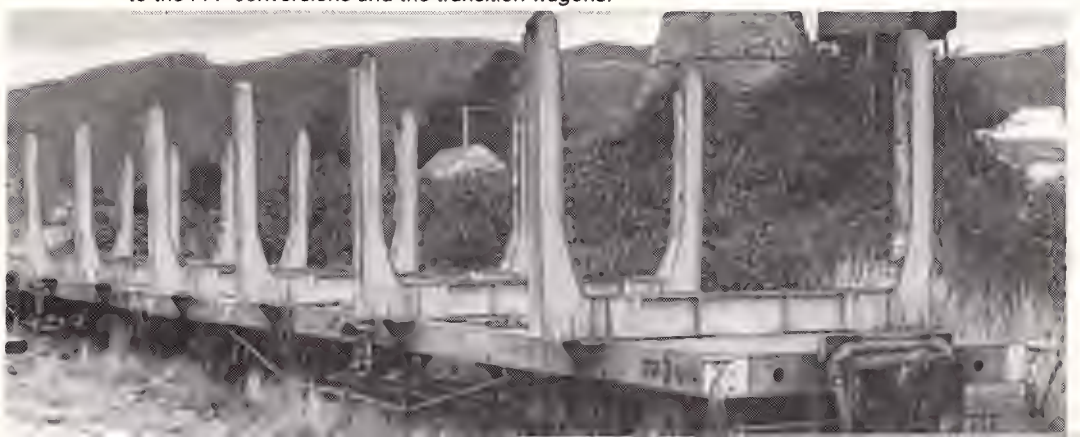


Commonwealth Railways Ride Control A3 bogie.

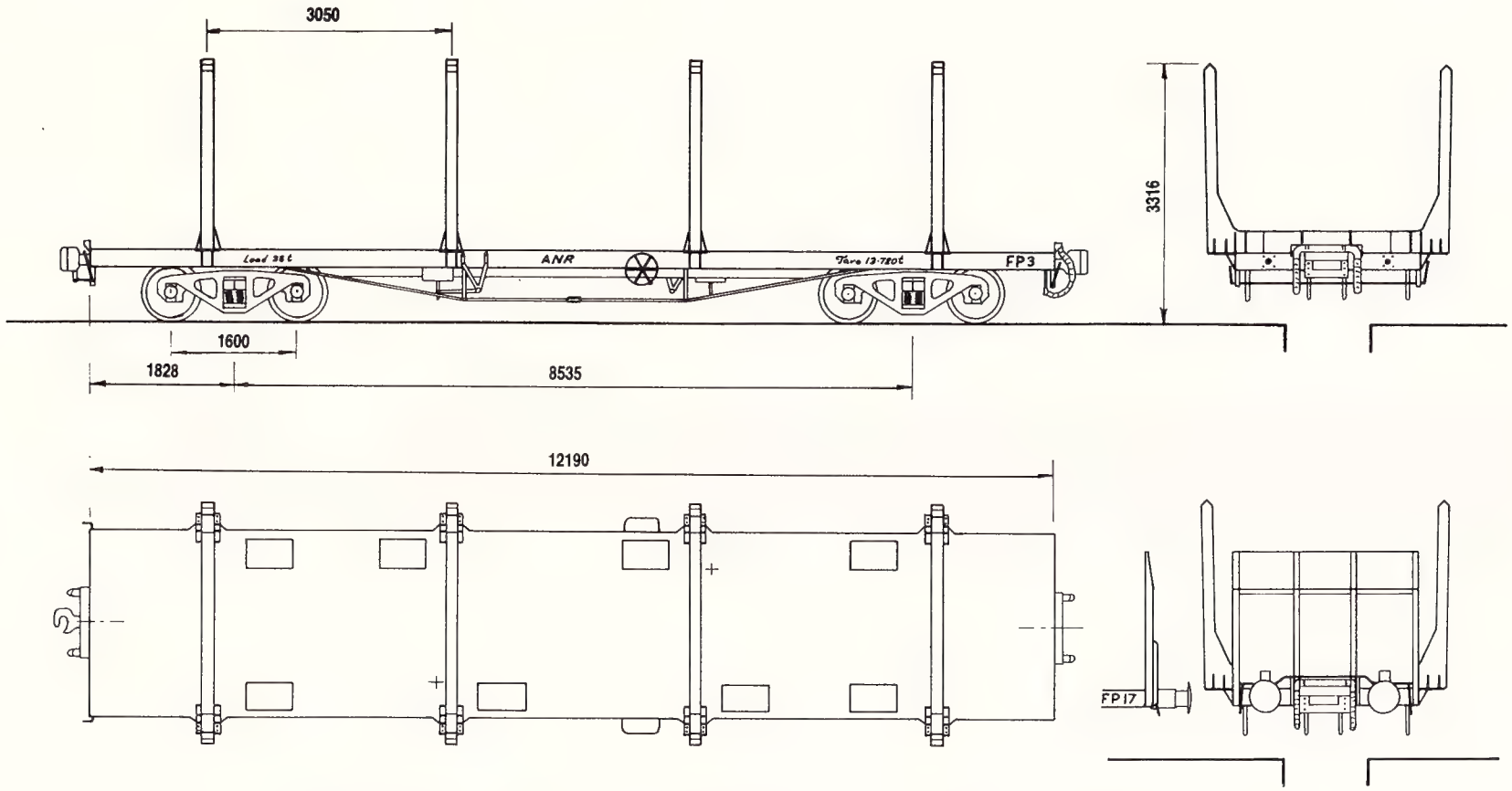
End view of FP 3. Note the position of the coupler release bar compared to the FFF conversions and the transition wagons.

End view of transition coupler-fitted FP 17. The coupler drawhook is stowed in position for when the automatic coupler is required.

Decks of wagons FP 3 and FP 28. Load binders are located in the rectangular recesses cut in the deck.



Standard KKD-conversion FP 3 at Fingal, May 1980.



0 1 2 3 4 5 6

SCALE – METRES

All dimentions are in millimetres.

AUSTRALIAN NATIONAL RAILWAYS
TASMANIAN REGION

FP Class Pine Log Wagon

Plans prepared by A.Parnell.

wagon. Eight of the transition wagons (FP 8-15) had transition couplers at one end only, while two (FP 16 and 17) had transition couplers at both ends. The transition coupler used on these wagons comprises a movable centre drawhook which is lifted into the coupler jaw when required. The closing of the coupler jaw locks the drawhook in the coupler centre line, while the operating of the coupler release bar allows the drawhook to fall away. The buffers fitted to these wagons are the retractable type, as initially fitted to all transition coupled stock.

The conversion work was undertaken in the Launceston workshops and, as completed, the wagons were stored in various parts of the Launceston yard until required. The wagon sides, ends, truss rods, couplers and log cradles were all painted yellow, with the deck being painted a red-brown colour. The bogies were painted silver, while the corners of the wagon frame were painted white to show that the wagon was equipped with roller bearing bogies. Lettering was in black. No system logo was added to these wagons at the time of conversion but an italicised ANR was later painted on most wagons. The conversions resulted in an increase in average wagon tare from 11.15t for the KKD wagons to about 13.8t for the standard FP, 14.7t for single transition wagons and 15.7t for double transition wagons. Carrying capacity was increased from 27 tonnes to initially 40 tonnes, but was later amended to 35 tonnes.

FFF Conversions.

When additional wagons were required for pine log traffic, five FFF class wagons were converted to FP class. The conversion details for these wagons closely followed those of the KKD, although the FFF wagons were already fitted with steel decks which were not replaced. FFF 45 and FFF 38 were fitted with log cradles and load binders in June and July 1979 for non-block traffic but retained the standard drawgear and bogies until January 1980 when automatic drawgear and roller bearing bogies were fitted and the wagons were reclassified FP 35 and FP 38 respectively. These wagons were replaced in non-block traffic by FFF 32 and FFF 34 in August 1980. Three further FFF class wagons (30, 33, 42) were converted to FP 36, 37 and 39 in January 1980.

TABLE 2 — CONVERSION DETAILS, FP PINE LOG WAGONS

No.	Converted from	Date	No.	Converted from	Date
1	KKD 69	3/ 5/78	21	KKD 59	24/ 7/78
2	KKD 8	25/ 5/78	22	KKD 34	3/ 8/78
3	KKD 18	25/ 5/78	23	KKD 20	4/10/78
4	KKD 50	23/ 6/78	24	KKD 61	1/ 8/78
5	KKD 5	4/ 9/78	25	KKD 26	1/ 8/78
6	KKD 38	23/ 6/78	26	KKD 23	23/ 8/78
7	KKD 39	26/ 6/78	27	KKD 15	18/ 8/78
8*	KKD 14	6/ 7/78	28	KKD 44	18/ 8/78
9*	KKD 51	6/ 7/78	29	KKD 42	22/ 8/78
10*	KKD 56	11/ 7/78	30	KKD 53	11/ 8/78
11*	KKD 65	3/ 8/78	31	KKD 36	8/ 9/78
12*	KKD 57	28/ 8/78	32	KKD 1	11/ 9/78
13*	KKD 41	4/ 9/78	33	KKD 19	22/ 9/78
14*	KKD 22	14/ 9/78	34	KKD 30	4/10/78
15*	KKD 32	17/10/78	35	FFF 45	15/ 1/80
16**	KKD 28	9/10/78	36	FFF 30	29/ 1/80
17**	KKD 64	1/10/78	37	FFF 33	25/ 1/80
18	KKD 35	24/ 7/78	38	FFF 38	14/ 1/80
19	KKD 58	21/ 7/78	39	FFF 42	8/ 2/80
20	KKD 54	1/ 8/78		FFF	/ /

* Transition coupler one end ** Transition coupler both ends

FFF 34 and FFF 42 had earlier been fitted with special quick-release stanchions for use in the carriage of sassafras logs from Maydena to New Norfolk for the Pioneer Woodware Company. With the closure of the Pioneer mill, these wagons became available for conversion.

The FFF conversions differ from the earlier KKD conversions in four main areas:

01 (a) The KKD wagons are nominally 2286mm (7'6") wide, while the FFF wagons are 2362mm (7'9") wide, although the exact dimensions differ somewhat between individual wagons.

01 (b) The FFF conversions retained the single handbrake at one end, in contrast to the dual centred handbrakes on the KKD conversions.

01 (c) The vacuum cylinders on the two types are located in different positions.

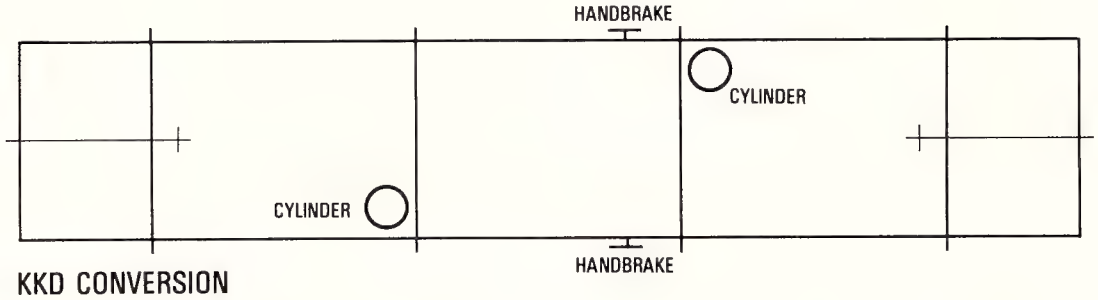
01 (d) The truss rods on the KKD wagons are lower than on the FFF wagons (450mm compared to 375mm).

OPERATION.

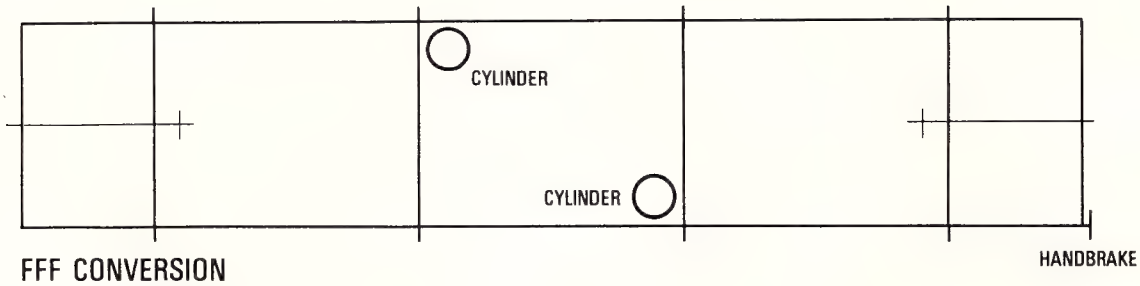
Because of the necessity to couple to stock fitted with drawhooks, the FP wagons are normally run in auto-coupled blocks, initially of six or seven wagons but recently up to nine, with transition coupled wagons at the outer end of the block. These blocks are transported by ordinary scheduled goods trains between Boyer and Blumont.

The make-up of these blocks changes frequently as wagons require running repairs or modification or as blocks are split during loading or unloading. During the period between the conversion of FFF 45 and FFF 38 to FP wagons and the modification of FFF 32 and FFF 34 to pine log wagons, the Fingal pine traffic was catered for by wagons removed from block working, either running with a transition pine wagon or with other automatic coupled coal or log wagons.

Pine log traffic from Blumont commenced in September 1978 and the early operation of these wagons was plagued by derailments, particularly on the North-east Line where track conditions were poor. One major cause of these derailments was the wheelsets fitted to



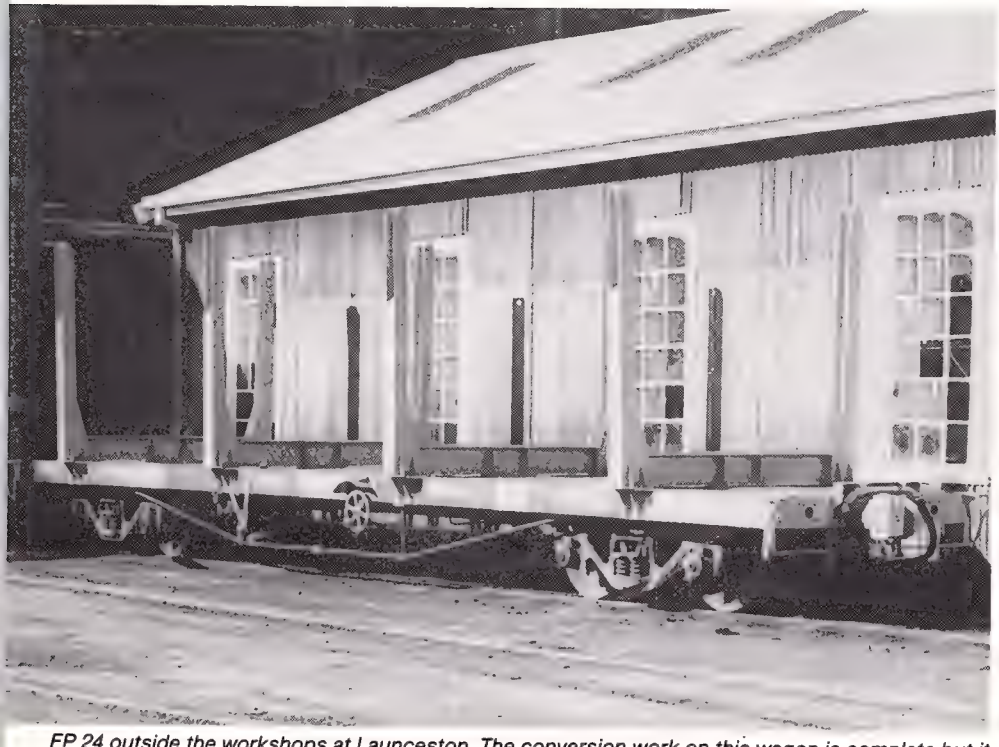
KKD CONVERSION



FFF CONVERSION

POSITION OF VACUUM-BRAKE CYLINDERS AND HANDBRAKE — FP WAGONS

Double transition wagon FP 17 at Fingal, May 1980.



FP 24 outside the workshops at Launceston. The conversion work on this wagon is complete but it has yet to be painted. The stanchions on this wagon are of the original design. Photo by G. Johnston.

the Commonwealth Railways A3-type bogie.

The tyre width of these wheels was approximately 86mm, compared to the standard Tasmanian tyre width of about 100mm, a difference of about 14mm per wheel or 28mm per wheelset. Excessive gauge widening on sharp curves, particularly on the North-east Line, caused the wheelsets to drop off one rail; the wagons sometimes rerailed themselves but a large number of major derailments occurred. The situation was improved by adjusting the track gauge where required.

As previously mentioned, the log cradles initially fitted to these wagons were not strong enough in traffic and these were progressively strengthened during 1979. Other modifications to these wagons have been minor and have not affected the appearance of the wagon. The wagons have retained the yellow colour scheme with silver bogies as applied when converted, although isolated examples of wagons fitted with a bogie painted CR red or AN yellow have occurred. Unless a distinct policy change occurs, it is unlikely that these wagons will be repainted in AN green and yellow in the near future.

MODELLING.

A rake of pine log wagons makes an attractive addition to a model railway, although the number of wagons in a block and their length make them rather space-consuming in larger scales. The construction of a model wagon is reasonably straightforward. The main base of the wagon is a truss-rod fitted flat wagon and, as such, presents little difficulty in modelling. The ends of the transition wagons are also reasonably straightforward in construction, although allowance for the buffers must be made when fitting the couplers.

Probably the most difficult and tedious part of the construction is the manufacture of the log cradles, the main difficulty being in the number of parts and amount of time required when making cradles for a number of wagons. The job of making the cradles can be eased by the use of jigs and templates and by having a good stock of materials on hand. Plastruct shapes can be used for the bolster and stanchions but good bracing is required to protect against rough handling.

The provision of correct style bogies for these wagons is also a problem as the A3 bogie appears to have no readily available and accurate model. On the 4mm scale models which I constructed, the bogies from Lima container wagons were used, modified to accept Kadee wheels. These bogies have a reasonably good shape and are the correct wheelbase (in 4mm scale), but are only the plain-bearing style bogie. However, this deficiency

Continued on page 27

FFF-conversion FP 39 at Bridgewater, May 1981. This photo shows the position of the vacuum cylinder on these wagons and the method of loading. This wagon is fitted with one silver bogie and one CR red bogie.

End detail of an FFF conversion. Note the position of the handbrake and coupler release bar compared to the standard FP wagon.

Coaling the X class (X42) while a coal carrying GY is over the receiving bin.

MODELLING PROJECT

AN S.A.R. COAL HANDLING PLANT ON THE V.R.

Harry Bender describes the construction of the South Australian Railways' 45 ton coal handling plant, in "O" gauge, ¼" scale. All photographs by the author.

When I was asked to host a layout visit for the Hobsons Bay Convention in Melbourne at Easter 1981, I suddenly realised that my O gauge layout was not sufficiently advanced for exhibition purposes. With only six weeks to Easter a hectic building and detailing programme was commenced.

The engine terminal looked rather sparse, with unballasted tracks and just the framework of the engine shed. Tracks were ballasted with stained cork granules and covered with fine sand to simulate the prototype. The engine shed was finally completed after being commenced nine years ago. You can't rush these things!

Further improvement was achieved by the addition of lamp posts and other detail, while Ford Nique kindly built a water crane for the layout.

Still not being satisfied, I browsed through copies of A.M.R.M. for further ideas and I came across the excellent article describing the South Australian 45 ton coal handling plant in the March/April 1978 (Issue No. 89) and September/October 1978 (Issue No. 92) issues. At the time of writing, both issues are still available from the Back Issues Department of SCR Publications.

Surveying the area and taking measurements, I found a model of the plant would fit into my loco yard. The only alteration required was the relocation of the receiving hopper road. As time was running out and the article gave all the details including photos and plans, an S.A.R. coal handling plant was installed on a Victorian Railway prototype layout.

The Model

Plans were redrawn to ¼":1' scale and from these plans the necessary North Eastern wood shape components were determined and purchased.

The shape of the hopper was developed from the drawings, marked out onto 0.020" thick styrene sheet, cut out and glued together with chloroform (other styrene solvents would be suitable), making sure everything was assembled squarely. It is also essential to obtain the correct cone angle as the hopper forms the basis of the whole construction. A square section of 0.020" styrene was cut to fit into the inside of the hopper and was fitted at the bottom of the parallel section to hold the unit rigid. This would also permit a dummy load of coal to be fitted later. The top flange was cut from 0.020" styrene and fitted.

Surrounding the cone of the hopper are four strengthening ribs. These were made from the correct section of stripwood, with one edge bevelled to suit the cone angle, then mitred at the corners to fit and glued in position, equally spaced and parallel. I used Aero Flyte C23 cement, which was fast drying on wood models. All the angles, columns and bracing for the frame were glued together with this cement. From 0.010" styrene sheet, the hopper door assembly was made and fitted after first filing the hopper bottom flat and parallel. To ensure a good finish on the timber shapes, it is best to sand all timber sections smooth before the framework is commenced.

The four 6" x 5" main support columns were cut to length from ⅛" x ⅛" column section, glued to the hopper after making sure they were at right angles, parallel to each other and at the correct centres. At the time of construction, I was unable to purchase the scale ⅛" x ⅛" wood section (for O gauge), so I made mine from strips of 0.010" and 0.020" styrene.

Having made sure the columns were all the correct lengths and the structure stood erect,

S.A.R. coal handling plant ... the model.

A different angle ... a different view.

the heavy flange surrounding the bottom of the parallel section of the hopper was fitted next, using 3/16" x 3/32" channel, notched to fit over the vertical columns and mitred at the corners.

All the bracing, cut from 3/32" x 3/32" angle, with gussets cut from 0.010" styrene, were then fitted as per the drawing. Also the vertical ribs surrounding the top section of the hopper were fitted, being cut from 0.020" styrene.

Using 1/8" x 1/16" channel, the top sheave platform was constructed, with a 0.010" styrene floor and an opening in the centre for the sheaves. Construction of the "A" frames to support this platform was next, using a balsa wood template, making sure that the opening at the top of the frame fits the sheave platform. The frame was then glued to the top flange of the hopper with the sheave platform in position, being temporarily supported by blocks of balsa.

The diagonal bracing can now be fitted, noting that the main diagonals were made from two different angle sections. Gussets cut from 0.010" styrene were then fitted at the various locations as shown on the plans and photos.

Counterweight guide rails, cut to length from 3/32" x 1/32" channel, were located in position by a balsa jig as described later, then all the angles supporting the guides were glued in place. Care must be taken to ensure that the guides are at the correct centres and parallel to the framework. The bucket guides were the most difficult to produce as the correct radius and angles had to be obtained. They were made from 3/16" x 1/16" Plastruct channel. The material was gently heated over a candle flame and bent around a former.

I used up six lengths of Plastruct channel, but only two were required for the model. This waste was proudly achieved by producing molten and distorted pieces of plastic until eventually the correct temperature and form was obtained. These guide rails were then cut to fit against the side channels of the sheave platform, whilst maintaining the correct distance from the main frame.

A balsa jig pinned together for easy removal was again used to hold the bucket rails in position while all the support bracing was fitted. The photo shows the balsa jig more clearly. The bottom of the rails were left straight and long enough to enter the bucket well, as any further detail cannot be seen below the well opening.

The operating platform was built up from 1/8" x 1/8" channel with a 0.010" styrene floor, cut to the correct shape. Handrails were made from brass angle for the posts, drilled to take 0.017" diameter copper wire. A wood fixture, with holes in the correct position, for both platforms was first made to hold the posts in position. Copper wire, formed to the correct shape, was then threaded through the holes in the posts. While the posts were held in the wood fixture, the handrails were soldered in position.

The assemblies were then glued to their respective platforms with Loctite IS495 adhesive. Super Glue will do as well. The completed operating platform was then fixed in the correct position and the supporting bracing fitted.

Just below the top end of the bucket guide rails are two lengths of curved angle to tip the bucket for emptying. These were made from an annulus of 0.010" styrene with a rim fitted (also cut from 0.010" styrene) to the outer circumference. This forms a circle of angle section which was then cut to length and glued in the correct position.

The bucket and yoke were made from 0.020" and 0.010" styrene, with rollers cut from plastic knitting needles, making sure the diameter fits the Plastruct channel rails. Clip the assembly between the rails at the top in the empty position – gluing was not necessary.

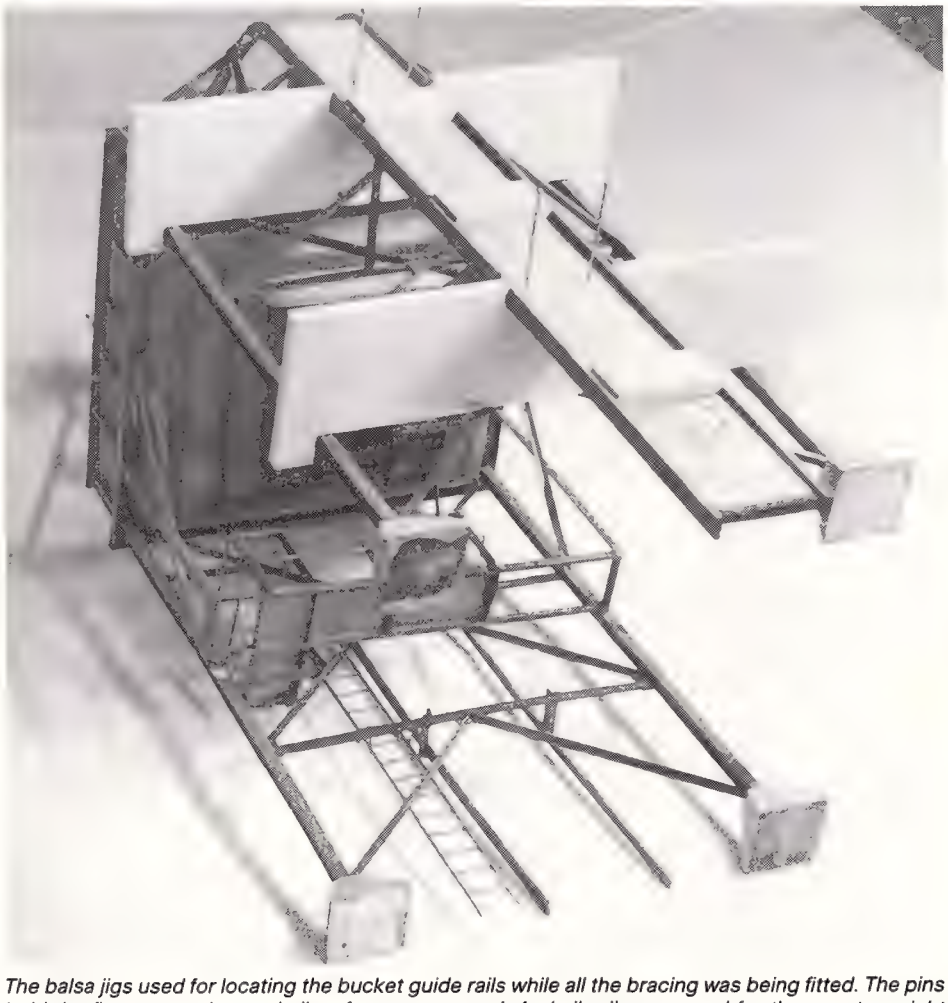
A block of fine grained wood was cut to size to simulate the counterweight, sanded smooth and painted to represent concrete. Pre-painted channel sections at the top and bottom of the counterweight were glued in position to allow a fit over the guide rails. Styrene was used to make the rope sheave yoke, then assembled with the two sheaves, painted and glued in place. It is easier, when parts are different colours, to paint them before assembly.

Back to the rope sheaves. These were made by first producing a brass pattern, from which a silicon rubber mould was made. Castings were then made by pouring a type metal-lead mix into the mould. The addition of lead in the mix reduces material brittleness. The castings were drilled for the axle holes in the lathe, then held on a small mandril while the rope grooves were turned.

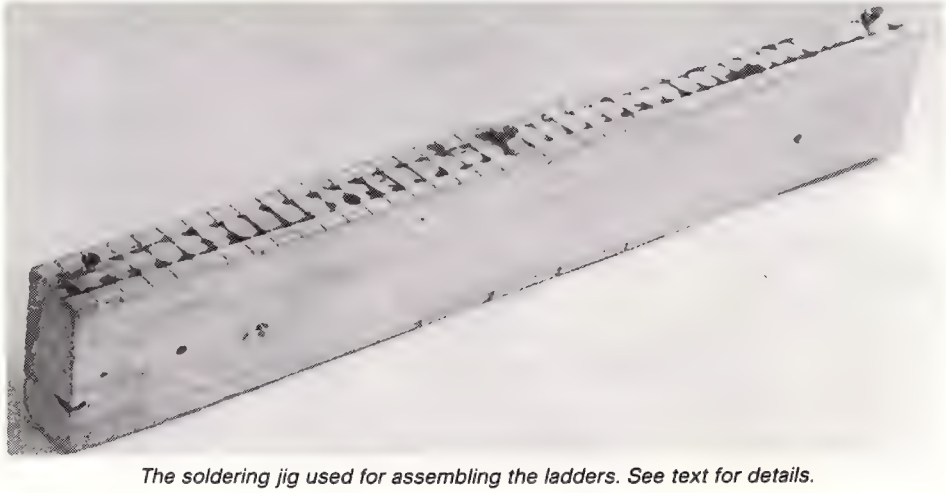
They were then assembled for the top platform in the support channels and bearings, the counterweight yoke also being added and both assemblies glued in place. The counterweight assembly was slid over the guide rails to the correct position in relation to the bucket, but not fixed in place until the model was painted.

Due to the layout of the engine yard, the winch house was situated in a similar location to that shown at Cockburn in the A.M.R.M. article. As such, a further set of sheaves was required to transfer the winding ropes to the winch house. To support these ropes between the sheaves and winch house, a set of support pulleys was required. These, as well as the one near the top edge of the hopper, were turned from brass and mounted in a styrene bracket.

Masonite was used to construct the receiving bin and bucket well. The assembled bin was sanded smooth and painted to represent concrete. The beams supporting the track over the receiving hopper were made from 0.020"



The balsa jigs used for locating the bucket guide rails while all the bracing was being fitted. The pins hold the fixture together and allow for easy removal. A similar jig was used for the counterweight guide rails.



The soldering jig used for assembling the ladders. See text for details.

styrene, painted black and glued in position. Safety grates were fabricated from strips of brass and wire, soldered together and fitted each side of and between the rails as shown in the photograph. Handrails, formed from 0.017" copper wire soldered together, were then fitted into pre-drilled holes around the top edge of the bucket well and painted black.

We now come to the tedious part. This was the long ladder which reaches right to the top of the sheave platform. As no commercial ladder stock looks correct, this ladder and the short ladder leading down into the bucket well were soldered together from wire.

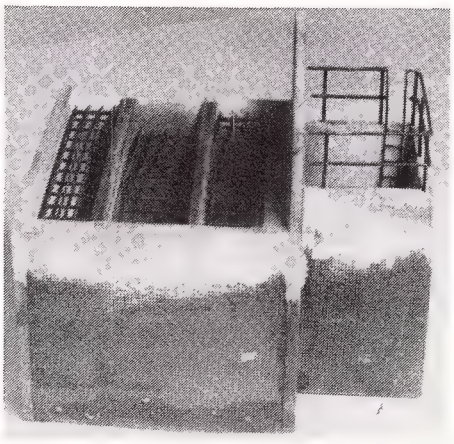
First a soldering jig was made from a section of straight grained 2" x 1" pine. Two grooves were cut with the grain, on the narrow side, 5/16" apart using a rule and scraper which was made from a discarded hacksaw blade similar to a Laminex cutter. These two grooves were cut deep enough to hold the ladder sides. Fine saw cuts were then made at equal spacings across these grooves to accommodate the wire rungs, which were cut for a good fit between the sides.

Having scratchbuilt numerous items of rolling stock and locos over a number of years, one eventually produces various labour and time-saving tools. The particular tool required in this instance is a set of home-made flattening rollers to produce various thicknesses of flattened copper wire, such as required for the ladder sides. The rollers and ladder soldering jig are illustrated in the photographs.

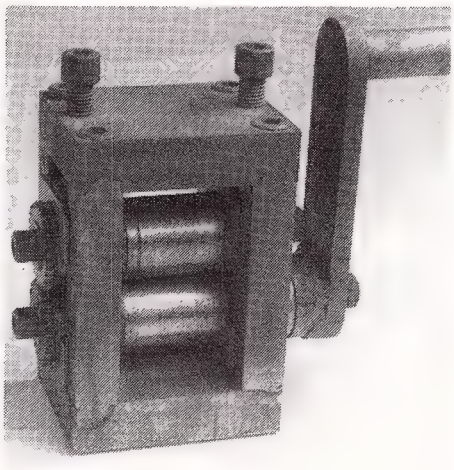
For "O" gauge the correct wire size is 0.036" diameter. The wire is stretch straightened then fed through the rollers until the correct width is obtained. The wire is then cut to length and straightened again, tinned on one side and placed in the soldering jig. Three sections of timber were used, held down by wood screws, to hold the ladder sides in place on the jig.

The ladder rungs, which were cut from 0.012" brass wire, were placed in the fixture and soldered one at a time to the sides. Here care must be exercised not to melt the previously soldered joints. Wire support arms were then soldered at the correct location and the ladder glued in place. The short ladder was made by the same process, painted black and fitted into the bucket well.

When the model was first placed in position over the coaling road, H220, being my largest loco, was driven through to check for clearances. To my dismay, the loco fouled the operating platform. Thinking I had made a mistake with the height of the model, I checked for errors. However, going through the original article on the structures, I found some plants were raised on concrete pedestals to accommodate broad gauge locos. This exercise was fortunately carried out before the ladder, bucket and counterweight guide rails were fitted.



The receiving hopper and bucket well before being fitted to the baseboard.



The home-made wire flattening rollers were used to produce the ladder sides. The groove in the top roller produces the beading as fitted to loco tenders and cab roofs.

Pedestals were cut from timber, sanded and painted to represent concrete and then glued to the base of the columns. This then raised the model to the correct height that cleared the models.

The completed model was then painted using a pressure can of grey auto primer. Weathering was obtained with a thin wash of black leather dye diluted with methylated spirits. A dummy load of coal was added into the hopper by gluing crushed coal in place with Aquadhere.

The body of the winch house was fabricated from 1/8" balsa, the opening for the windows and doors being cut out. A 1/16" balsa roof was added, the building checked for squareness and glued together. The body was then covered with scale corrugated aluminium foil. Again I used a home-made corru-mangle which produces scale "O" gauge corrugated iron.

To complete the winch house, fascia, windows, doors, spouting and downpipe were added. Grey auto primer, in pressure pack form, was again used to paint the model and then the winch house was added to the layout. The safety railings/fence surrounding the winding ropes were made from stripwood, fitted and painted white.

No attempt was made to make it an operating model as I feel the structure, being made from wood and styrene, would not have been rigid enough. As yet, the ropes have not been fitted, as shown in the photographs. Who knows, this might take another nine years.

As noticed in the photographs, the model has not yet been embedded into the groundwork on the baseboard. This is evident by the dark lines around the bottom of the pedestal and winch house. These gaps will eventually be covered with fine sand, imitation grass and weeds.

This is how a South Australian Railways coaling plant was installed on the Victorian Railways. ■

Tasmania's FP Class Pine Log Wagon

Continued from page 23

does not overly detract from the appearance of the finished model.

To complete the model, we require a simulated load of pine log thinnings. One method of achieving a reasonable looking load is to use the material off matchstick blinds, suitably cut to length and stained to suit the colour of Pinus radiata trunks. These could be added as a permanent fixture to the wagon, or manufactured in bundles which could be removed and added to the wagon as desired.

For those wishing to model a log loading area, the facilities required are simple. A loop, long enough to hold the desired number of wagons, a log-faced loading platform to wagon deck level (generally running the length of the loop) and a flat area containing stacked logs, a weighbridge and hut, a garage and fuelling facilities for the log loader and a site office.

In Tasmania, the pine logs are delivered from the scattered pine plantations by road truck to the rail siding. The logs are unloaded by a front-end grab loader and either stockpiled or loaded directly onto the wagons. The empty wagons can be placed by one train and picked up on the return trip or an empty rake can be left and a full rake picked up at the same time. The latter method has the disadvantage of effectively doubling the number of wagons required.

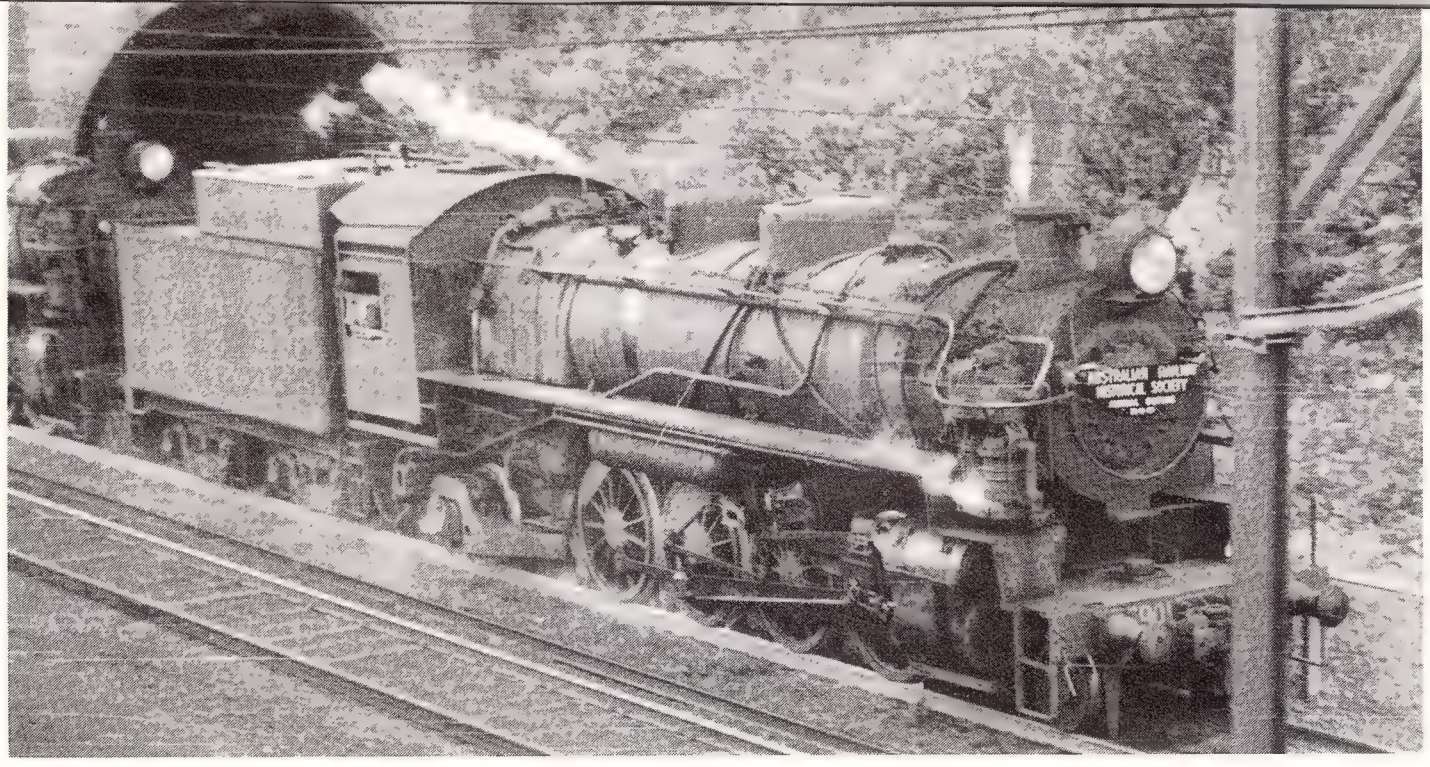
The log siding need not be placed on a straight section of track; there are at least two examples in Tasmania (Malahide and Jubilee) of log loading depots being placed on curved track sections. This prototype suggests a possible use for some of the numerous curved sections which seem to plague most model railways. Alternatively, logs could be loaded from ground level at any available siding where large scale traffic was not desired. For those not wishing to model a block of wagons, the use of a single non-block FFF class pine wagon or a double transition wagon would be prototypically correct. ■

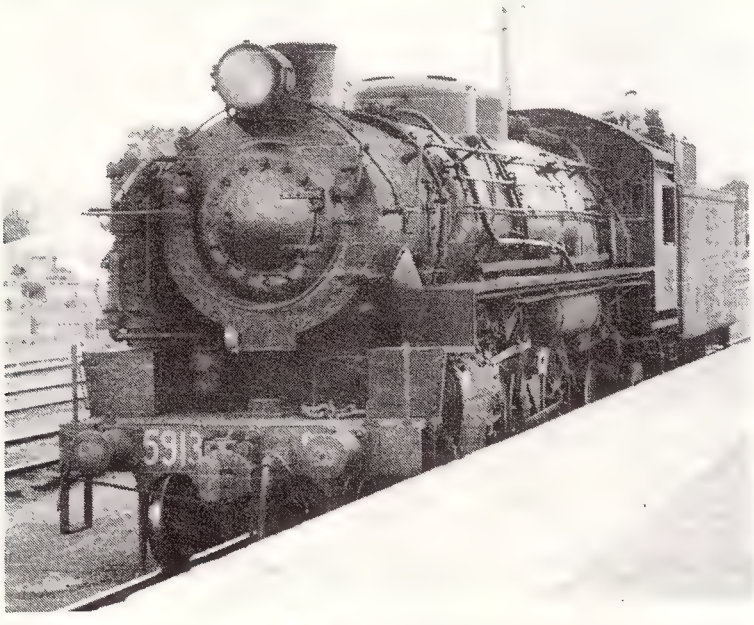
CORRECTION – ONE MANS WAY

Last issue, a gremlin struck the table that accompanied John Burgoyne's article 'On Rolling Stock — Wheels, Ramps and Running'. For accuracy the table is reprinted — in full — below. *Editor.*

TABLE 1

	RP25 Code 110	CV3	RP25 Code 88	CV4	AAR Prototype HO Scale
Flange Depth	0.025"	0.025"	0.020"	0.017"	0.011"
Tyre Width	0.110"	0.110"	0.088"	0.086"	0.066"





OIL BURNING D59 CLASS

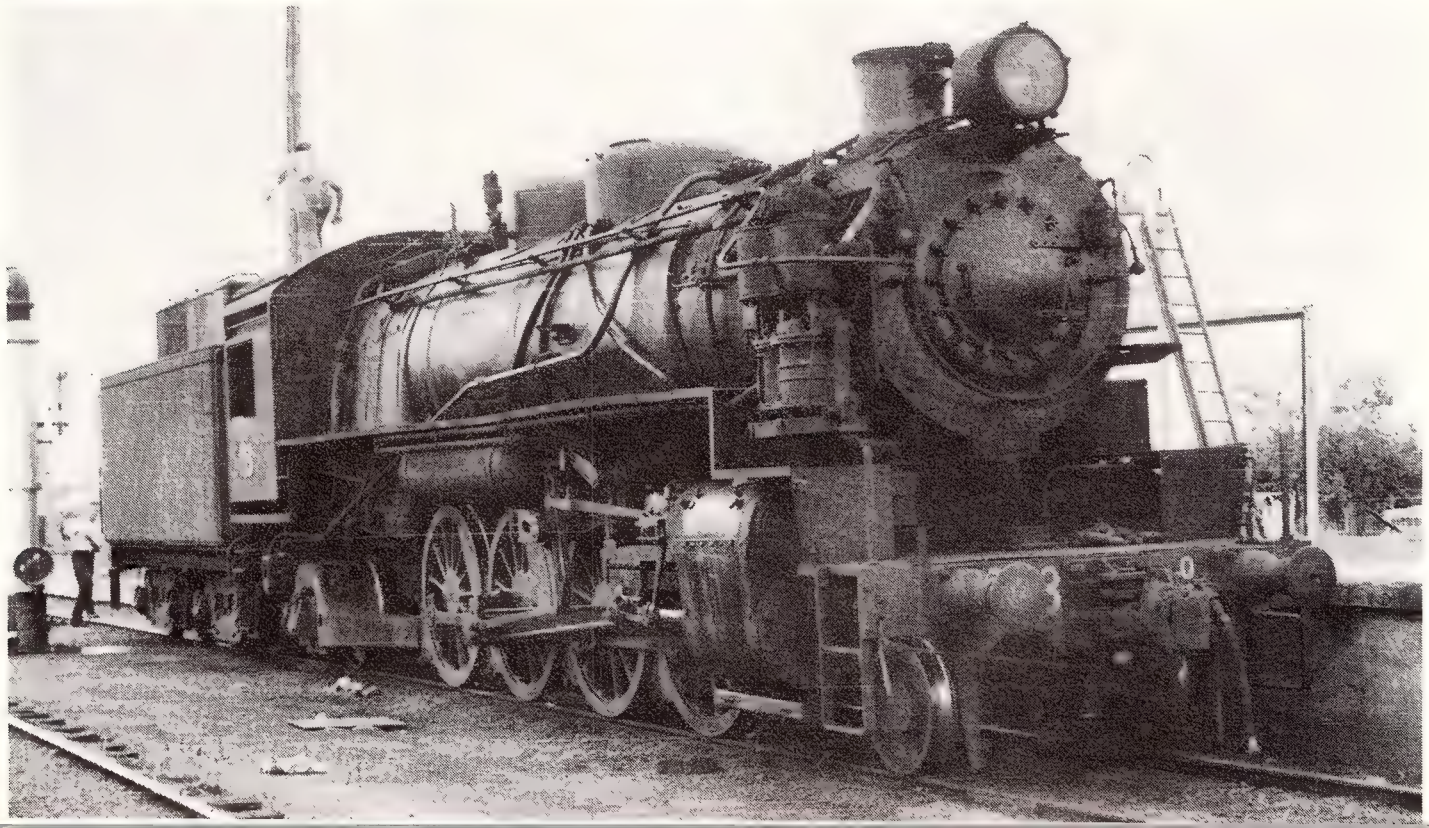
As ordered from the Baldwin-Lima-Hamilton Corporation the D59 class was the only steam locomotive introduced to service as an oil burner. The 20 units (5901-5920) were purchased to overcome a shortage of motive power after World War II, and to enable them to be turned on a 60ft turntable they were fitted with an unusually short tender.

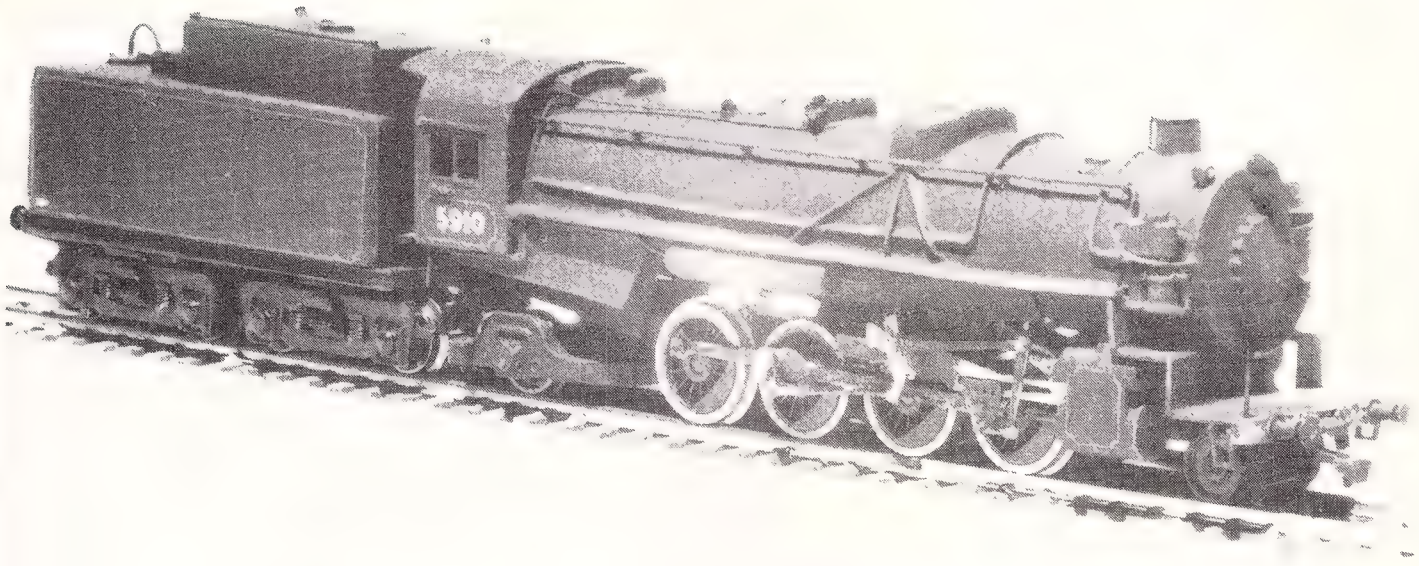
Gradually the class was converted to coal burning except for 5908, 5916 and 5918, which retained the oil firing equipment to the end of their days.

As an oil burner, the class had a few detail differences to that seen in the latter days of steam when most D59's were coal fired. The tender was one noticeable difference with the fuel oil tank being fitted on top, and the smokebox door area on the locomotive differred greatly to its coal fired sisters.

The accompanying photographs illustrate some of the detail restricted to the oil burning D59 class.

Top: *5901 leads 5915 on an Australian Railway Historical Society outing, in 1960. The photograph was taken by Ray Love at Cowan Bank.*
Centre and Below: *5913 at Casino in 1961. Ray Love photo.*





KITBASH AN OIL BURNING D59 CLASS

Garry Kahler describes how he built an HO scale model of an oil burning D59 class from a Mantua or Lima Mikado.

Following a shortage of coal during the late 1940's the N.S.W. Railways ordered, from the Baldwin Locomotive Works of America, 20 U.S.R.A. light Mikados, to be delivered as oil burners, but with a tender to allow the engines to be turned on a 60 ft. turntable. This last requirement prevented the engines being delivered until 1952-1953, as completely new tenders had to be designed, built and fitted to the locomotives. The 20 engines when delivered became the D.59 class.

Some time ago I purchased a Mantua 2-8-2 Mikado Kit. Now if you are a rivet counter or a scale rule to the "nth." degree expert, then you need NOT bother to read this article further!

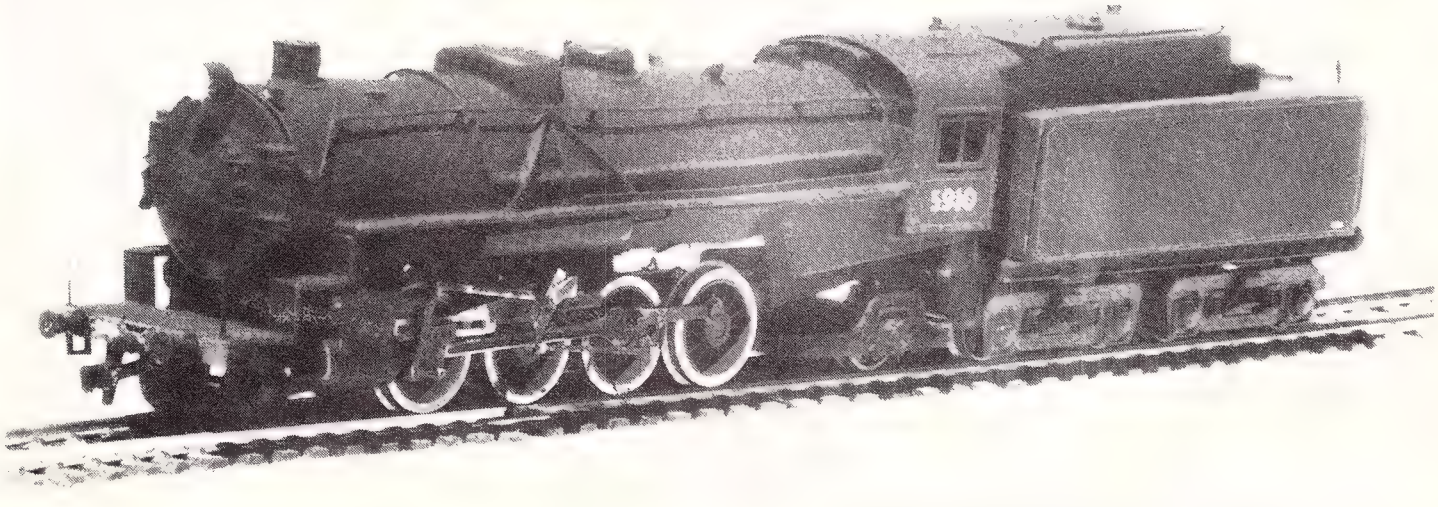
The Mantua Mikado can be converted into a very reasonable facsimile of a D.59 class with a little patience and some filing and cutting of the boiler. The wheelbase is near enough for a 3.75 mm or 4 mm to the foot Scale model. The tender was discarded completely as a new tender needs to be built (just like the prototype). If you have put a scale rule on the boiler you will have found it is miles too big. Do not despair; at least the funnel steam dome and sand box look right and are close to the correct positions. At this stage I might point out that the process I used is applicable to the cast metal Mantua 2-8-2 Mikado Kit, but is equally usable with the Lima Mikado (Lima catalogue No. 3009). In fact anyone using the Lima engine will find the job much easier than working with the cast metal Mantua kit.

To begin with, on the Mantua kit the handrails, footboards, all piping, headlight, safety valves and air pump were filed off the boiler. The steam generator and air reservoirs, along with the funnel, sand box and steam dome were left on. The headlight was repositioned near to the correct position. On the Lima Mikado you can leave all the above on except the air pump and the handrails forward of the funnel. A second air reservoir will need to be added on the left hand side and the steps to the buffer beam reconstructed. The headlight will have to be repositioned, and the hole in the smoke box filled. On the Mantua kit the cab was shaped to approximate that of the 59 class by filing a little off the overhang at the rear and cutting out the horizontal bars in the windows. With the Lima Mikado, the cab roof above the windows will need to be built up slightly with filler and filed smooth. The fire box was then reshaped. With the Mantua kit a little has to be cut off the bottom, while the Lima Mikado requires a little off the front.

The next step applies to the Mantua kit only and is not necessary with the Lima Mikado. After removing the cab from the boiler casting and noting that it was mounted by a screw through a lug on the casting and sitting in two slots at the base, about 6 mm was cut off the rear of the fire box top. At the same time a new lug and two new slots, to accommodate the cab, were cut. The boiler was then lowered on the frame by cutting a small amount from each of the mounting bars on the rear of the frame. A similar amount was also cut off the boiler casting at the very rear under the cab on the underside of the casting. The top of the cylinder block mount-boiler support was also filed down, correspondingly, until the boiler sat level, with a half round file.

Turning the boiler casting upside down and using a small grinding stone mounted in an electric drill an amount, sufficient to accommodate the motor when the boiler was repositioned, was ground from the inside of the boiler casting. Care must be exercised when grinding down so as NOT to overdo it

Top: Right hand side of 5910. Below: Left hand side.



and grind a hole in the side of the boiler. It is better to take a little at a time and keep checking than to take too much and be sorry. Any holes (e.g. headlight) were then filled with metal filler (or body putty) and the whole unit reassembled. A new footboard along each side, made from 0.040 Plasticard, was fixed to the boiler from the cab to just forward of the steam pipe from the cylinder chests.

Reference to a plan or photo of the D.59 shows that this pipe protrudes through the footboard on the 59. Because of the oversize of the boiler of the Mantua kit the steam pipe finishes under the footboard. I have left mine like that and it does NOT look out of place.

From now on the methods are the same for both the Mantua and Lima engines, as we begin to add a few details to that bare engine.

Next the air reservoirs were replaced where necessary, one to each side under the footboard and a new twin air pump added on the side of the smoke box. On the Mantua kit a new air pump will have to be obtained, while on the Lima Mikado simply move the Air Pump from in front of the boiler to its correct position. The piping between the air reservoir, air pump, pump exhaust and cab, and the sand box and footboards was made from fine copper wire and glued on. Two new offset safety valves were added to the top of the fire box. The headlight was repositioned (or replaced if you wish) at the top of the smoke box front. If you are going to convert your model to a coal burning engine then you will need to replace the smoke box door as well otherwise for an oil burner leave the smoke box as it is.

New marker lamps are then added to the side well up on the smoke box front. New handrails are made from fine spring wire (the wire in the Ratio signal kits is ideal) threaded through new handrail supports (obtainable through your local hobby shop). The whistle is then added. It is made out of a short piece of brass rod with the top half cut away and a short angled piece of flat brass soldered to the side. A fine wire was then connected from the lever to the cab.

The front steps between the footboard and the buffer beam were made up from Plasticard and attached as a unit to the frame in lieu of the piece provided with the Mantua kit and as a replacement piece on the Lima engine. The leading pony truck on the Mantua kit was replaced as the one provided is too long, while on the Lima Mikado the rear trailing truck should be replaced with the C.38 trailing truck as available from F.S.M. Buffers and a Protype knuckle coupler were added to the Buffer Beam as well as shunters grab rails (made from pins) and Shunters Steps.

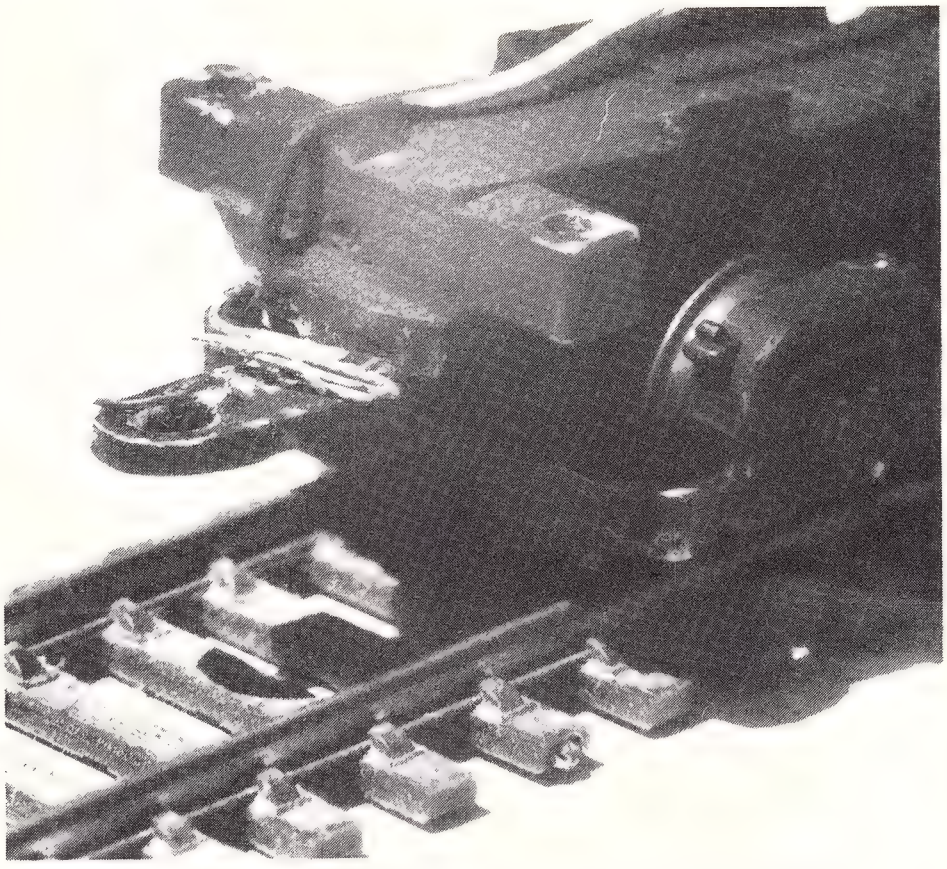
Now to the Tender.

In this project I found it easier to build a completely new tender. It must be remembered that the tender contains part of the pick-up arrangement and should remain electrically isolated from the engine. With this in mind, as the Mantua engine has a metal frame, I constructed my tender from Sheet Plasticard.

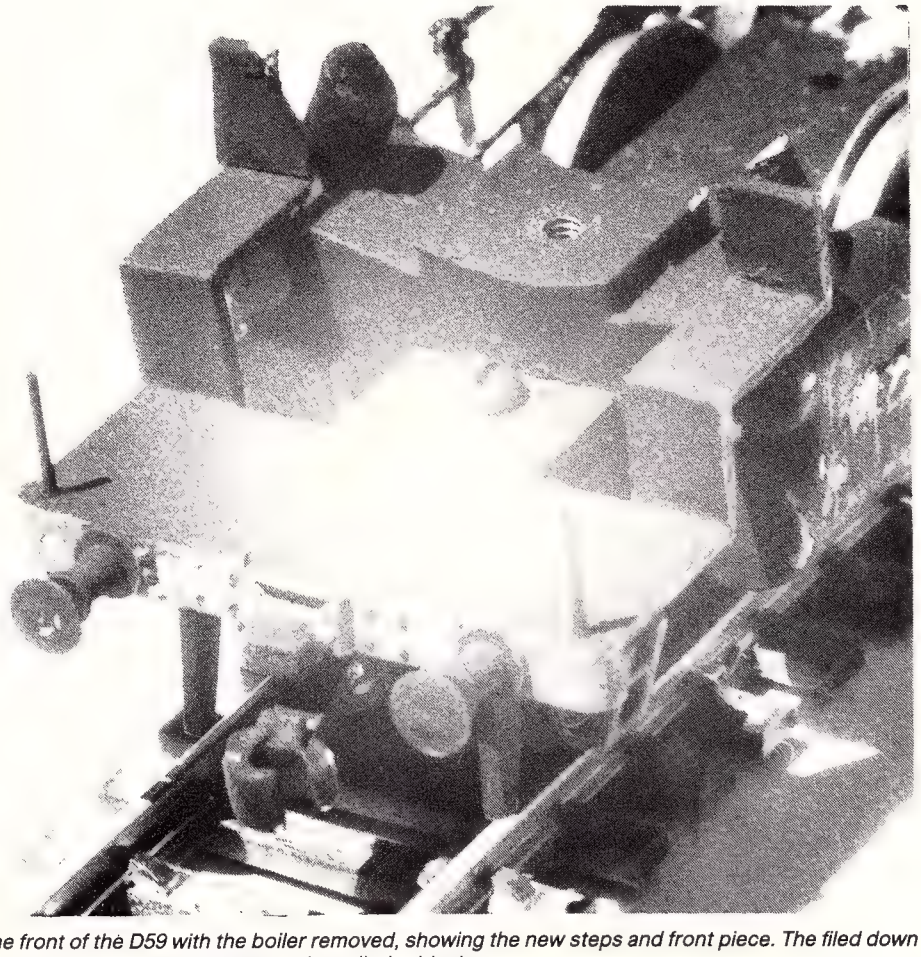
Basically the tender consists of two boxes, one on top of the other and mounted onto a flat base edged with strip plastic. If you intend making a coal burning engine then the top box will have an open top. For an oil burner this top is filled over with a piece of Plasticard.

The sides are then covered with a very thin sheet of Plasticard (0.010) on which are marked the rivets. This can be very easily done by using a steel knitting needle and a steel rule. Add filler caps for water at the rear and oil (if required) on top, handrails around the top (if a coal burner fill top with coal), ladder up the back, rear marker lamps, rear coupling and buffers. If a coal burner you will also require to add the shovel plate and wing doors in the front.

Bogies are Commonwealth pattern with metal wheels added to one bogie. The pick up



The tender drawbar at the rear of the engine. The 'S' shaped wire rubs on the wire glued to the drawbar. The boiler mounts are visible between the drawbar and the rear truck.



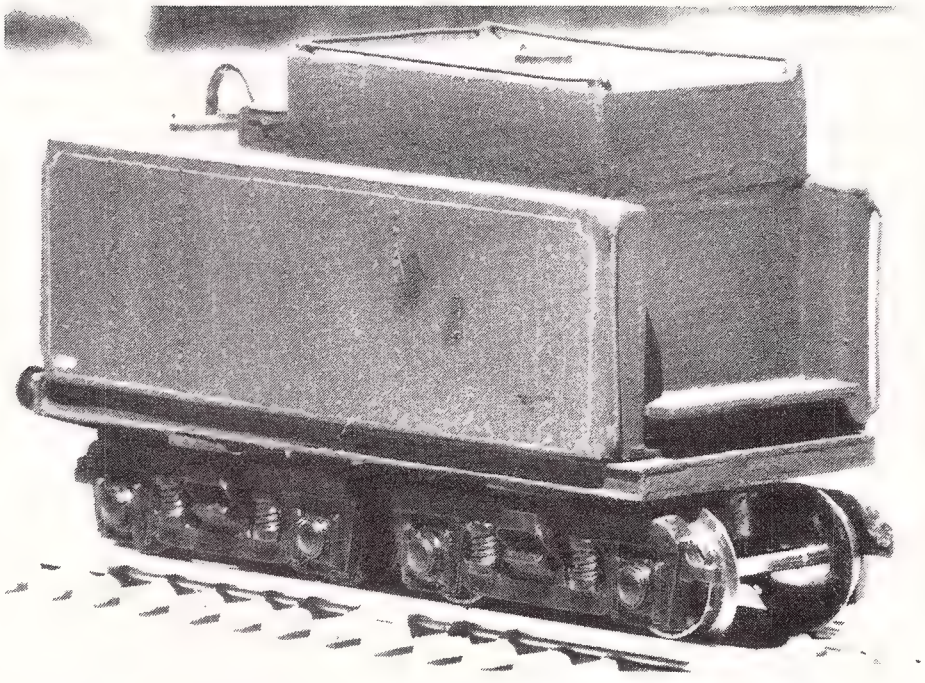
The front of the D59 with the boiler removed, showing the new steps and front piece. The filed down boiler support is visible between the cylinder blocks.

was then arranged by using a piece of wire shaped to rub on the two axles. A light spring wire is used and to this is attached a short length of hook up wire which is soldered to the draw bar pin glued under the front of the tender. With the Lima Mikado this pin is replaced by a screw holding the draw bar. The hook up wire is attached to the screw in this case and the original draw bar refitted.

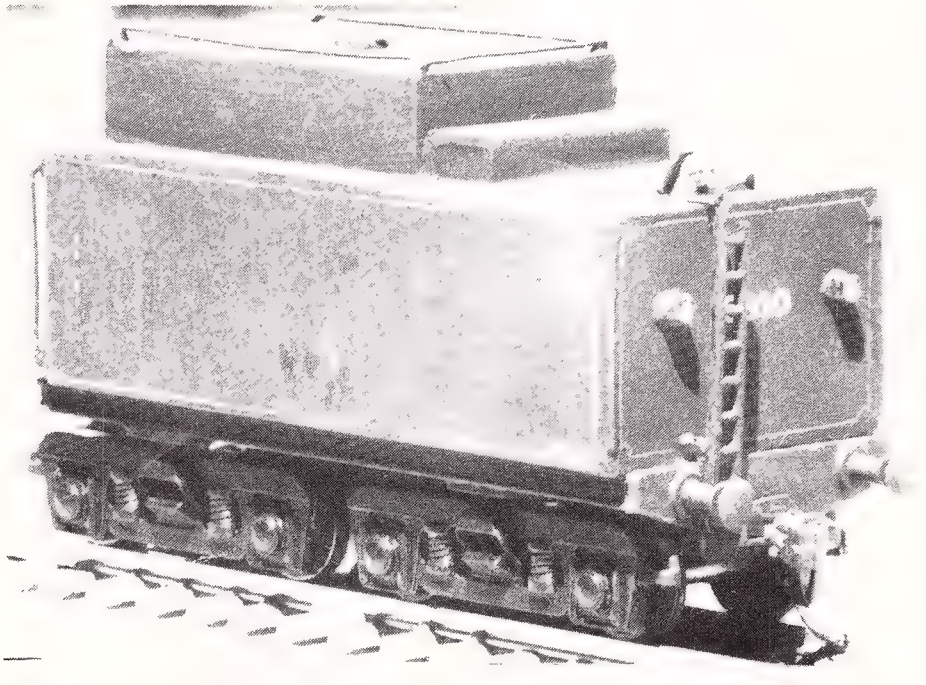
The Lima engine is now ready to paint. The Mantua engine has to have a draw bar connection between the engine and the tender made up. The coupling bar was made of 0.060 Plasticard. To this was glued a short piece of spring wire attached so that it springs against the coupling pin on the tender. To the wire from the motor was attached a short spring wire bent in the shape of a long "U" turned side on. The upper end of this U was glued to a piece of plastic glued over the rear of the frame. The lower arm is sprung against the wire on the coupling bar.

Now your 59 is ready to paint. The paint scheme is black with red lining. If you have an oil burner then the numerals on the cab sides, front buffer beam, and tender rear are American Roman Style. If you have a coal burner then the numerals are ordinary Gothic.

REMEMBER that this is NOT a scale model but a kit conversion. DO NOT try and compare this model with a brass D59. As I said in the beginning, if you are a rivet counter or a scale rule nut then don't bother with this. I obtained much enjoyment out of making my 59 and I hope I can share it with you.

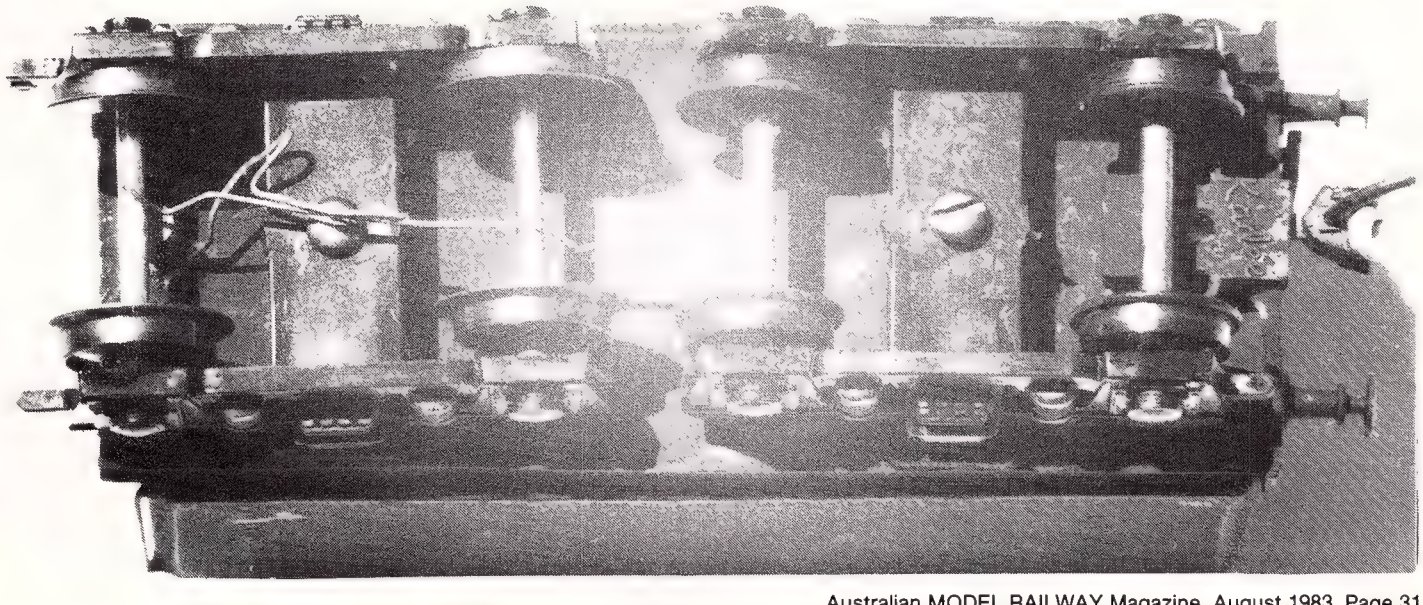


The 59's tender front and right side. Note how the lead bogie protrudes forward from the frame.



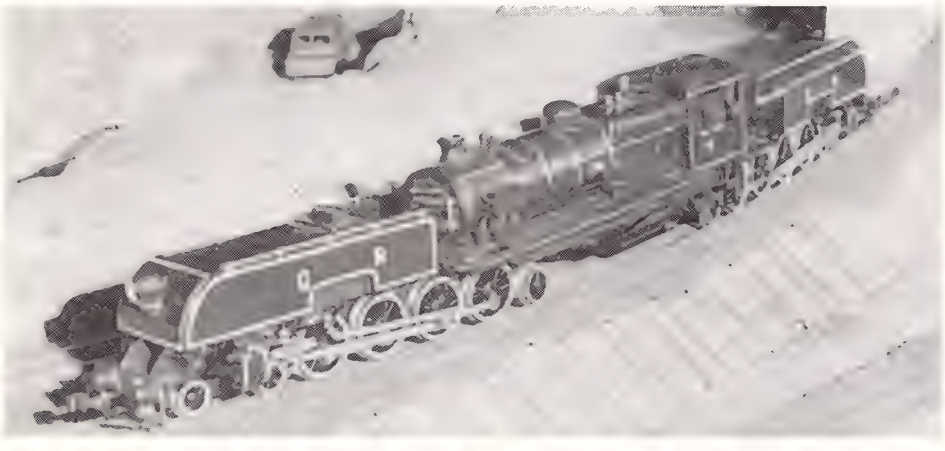
Left side and rear of tender.

Underside of tender showing the pick-up arrangement.



The country scenery displayed on the layout exhibited by the Railway Modellers Club of Queensland. The sturdy barrier that was used to separate the public and the layouts can be seen in the background.

This row of terrace houses featured on Bob Kettle's British prototype layout. The other structures on the layout are also up to this very high standard, including the pub alongside the houses.



1983 BRISBANE MODEL RAILWAY EXHIBITION

by Bob Gallagher.

The 1983 Brisbane Model Railway Exhibition, hosted by the Queensland Branch of the Australian Model Railway Association, was held at the Brisbane Exhibition Grounds over the Queensland Labour Day weekend, early in May. The damp weather ensured a full house, too full for comfort.

The exhibition presented an array of displays, both static and operational plus a number of commercial stands. The latter presented the public and modellers alike with an opportunity to purchase a wide range of model railway products, some at bargain prices.

Railway enthusiasts were represented by the A.R.H.S. stand, where a large range of books were on display. Modellers, new and old were assisted by the A.M.R.A. with displays of scratchbuilding, scenery techniques and general information, while inside the large hall was a self contained stand that provided that needed sustenance for the inner man.

Layouts on display covered virtually the whole model railway spectrum, including British, European, American and Australian prototypes. Scales represented included Z, N, HO, OO, S, O and some live steam models and of course a tram layout or two. All layouts were contained behind solid pipe and wire fencing. This barrier may have looked unsightly, but it was a very effective crowd control, an aspect that is often missing at many exhibitions.

Generally the standard of the layouts was high. The range of types and styles on display certainly entertained the public regardless of the authenticity to prototype accuracy. It is not possible to mention every layout in detail, but some do demand specific mention.

The British Railway Modellers Group presented a OO scale layout that featured some very fine scratch built structures. The highlight of these was a cluster of terrace houses, clad in stone. Bob Kettle built the layout and the structures.

The Queensland Branch of A.M.R.A. exhibited their dual gauge layout, this year presenting HOn3½ and Sn3½ scale models. Although the larger models looked out of place alongside the diminutive HOn3½ scale models, it was very pleasing to see the growing interest in Sn3½. This layout also displays a number of models that have been based on structures found around Queensland.

The Railway Modellers Club of Queensland displayed a modular HO scale layout. The modules form a 3 metre circle, and the layout of the track took advantage of large radii curves. The track was detailed with indigenous styled structures while the trains run on the layout included Australian, British and American.

Bill Reeves and Ron Carter displayed a simple circle of track around which ran some magnificent 'O' scale models, all of USA prototype. Some models were in the raw brass, some were painted and one was gold plated. These models represented the best in commercially produced models in King gauge.

David Jenkins, Steven Russell-Clark and Des Tritton presented a modular point to point layout

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Three photographs illustrating the layout exhibited by the Queensland Branch of the Australian Model Railway Association.

Above Left: *Sn3½ Garratt hauling a rather modern freight train.*

Left: *More Sn3½ models — steamer BB18¼ at the head of a passenger, while a modern 'G.M.' 1720 class diesel is at the head of a freight. Both are Q.R. prototype of course.*

Right: *HO scale on the layout was represented by a number of HOn3½ models, including this model of a Q.R. 1450 class diesel, which is hauling a coalie past the goods siding.*

featuring three fictitious British towns. Operation was based on typical practice which entertained the public for long periods.

David Batch exhibited an 'N' scale layout built by G.Ward, J.Christie and A.McLaughlin. The layout is based on the Border Loop section of the Brisbane — Sydney railway and featured a number of railway structures and Queensland style houses. The layout was detailed with a number of figures partaking to the running of a railway. Models on the layout included Australian and British based models.

On display at the Queensland Society of Model & Experimental Engineers was a superb working model of a NSWR 42 class power bogie in ⅛th scale. The model was built by Bruce Gow and is part of a working model that is being built for 7¼" gauge operation.

The Union Pacific Model Railway Club presented a shunting display that highlighted the finer points of Kadee couplers. Naturally, only American outline was in use.

A feature of the exhibition was the very extensive 'N TRAK' display. The many modules presented the scope of long trains and a wide representation of scenery styles. While the layout appeared to run flawlessly, unfortunately not all modules blended together scenicly. The layout did however present the many appealing aspects of N scale along with some very finely detailed modules.

The 'myth' of the very powerful 'N' scale locomotives was, however, shattered. As with large N scale layouts, the trains were very long, and it would appear that the prowess of the diminutive was undisputed. It was however, interesting to observe, a few minutes later, the same rake of coaches running effortlessly around the track without a locomotive attached. Yes, one coach was fitted with a mechanism.

It was the first time that the author has visited the Brisbane exhibition at the Exhibition grounds, and the visit was rewarding. Queensland modellers showed that they can match the quality of the other states and appeared to be only hindered by the lack of numbers.

How did the Brisbane Exhibition compare with other major city exhibitions? It is unfair to all to try and be specific with comparisons. There were however a few aspects with the Brisbane exhibition that could be copied by other exhibitions.

There was plenty of space between the layouts, especially the width of the aisles. All exhibits were separated from the public with sturdy barriers, without hindering the sight of the paying public. Hot and cold food, as well as snacks were available inside the hall, and seating for tired bodies was provided. The commercial stands presented a very wide range of models and kits for sale. The range of goods provided for all modellers including the beginners and the scratchbuilders.

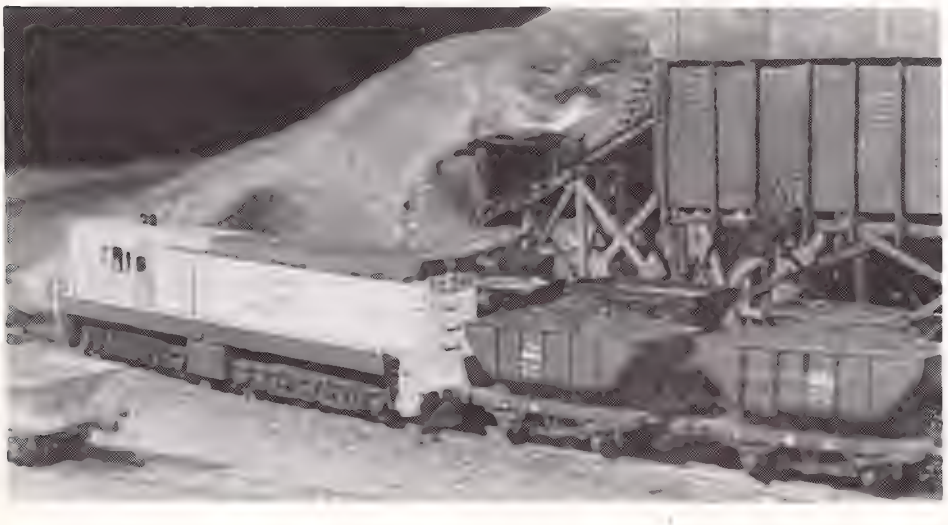
The layouts on display however were not treated to the high standard of presentation being applied to the Sydney and Melbourne exhibition scene. To this end it was very difficult to learn about the layout or its builders without asking a busy operator, and special lighting was not found to be a necessary feature of the displays.

Despite these comments, the exhibition could only be described as being very good, informative

Model engineering was represented by a number of models but the highlight had to be the model of a N.S.W. 42 class diesel electric power bogie built by Bruce Gow.

4461, at the head of an interstate express, passes through the gentle Queensland scenery on David Batch's N scale layout.

Part of the industrial scene on the very large 'N-TRAK' layout.



ADVERTISING DEADLINE.

The deadline for advertising for the October 1983 issue is July 22, 1983. Please be early. - *Editor.*

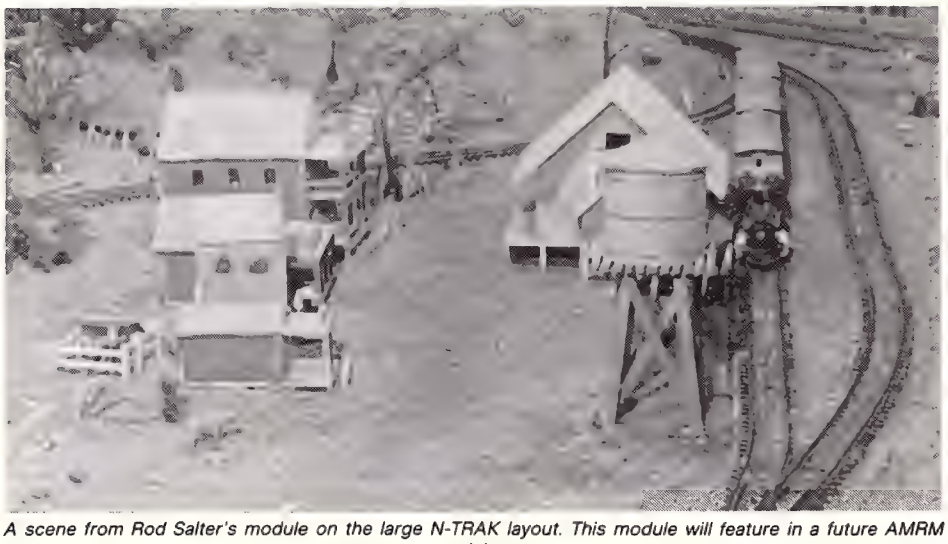
SUBSCRIBERS

The October 1983 issue will be published on September 16, 1983. If you have received a renewal notice in the last few weeks, the renewal note and payment has to be returned to the AMRM office by August 1, 1983 so that your subscription may be continuous. — *Editor.*

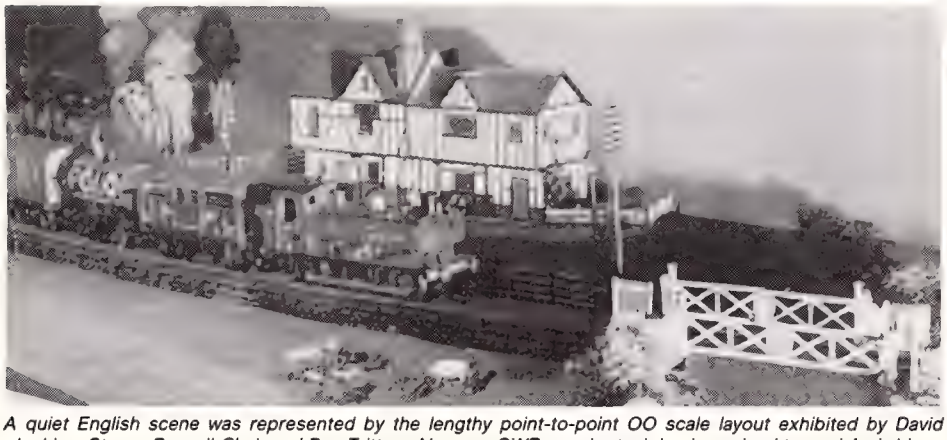
The model railway hobby should be taken seriously, but not solemnly.

These two photographs illustrate the shunting module displayed by the Union Pacific Model Railway Club. The feature of this exibit was the shunting movements which displayed the benefit of Kadee delayed action magnetic couplers.

Hidden in a corner of the hall was a very impressive N scale layout which was built by members of A.M.R.A. The layout featured Queensland style trestles and a very large timber mill, complete with lake and logs.



A scene from Rod Salter's module on the large N-TRAK layout. This module will feature in a future AMRM article.



A quiet English scene was represented by the lengthy point-to-point OO scale layout exhibited by David Jenkins, Steven Russell-Clark and Des Tritton. Above, a GWR pannier tank hauls a mixed toward Ambridge.

and very entertaining. At $1.00 a head it was the best value for money exhibition for years and a credit to its organisers.

Bob Gallagher.

Photographs by Bob Gallagher, Ian Thorpe and Graham Ball.

POWERING the 'WEICO' MODELS in 'N' SCALE

To date we have purchased at least one of each of the white metal loco kits put out by Weico Models. The standard powering mechanism for each of these has been the 'Life Like' SD45. We first used this mechanism some years ago only to find the plastic chassis tended to sag downwards in the middle during the hot months. This caused untold problems with running. In an attempt to overcome this we have come up with the suggestions listed below. This method seems to fix the problem and we feel it may be of some assistance to other N scale modellers. The Weico models all appear to have small protruding chassis mounts inside the body at about the middle of the loco. To these we glued a piece of plastic about 8mm wide by 1.5mm thick all the way across. This rests just above the chassis and behind the motor when installed.

Modify the chassis as follows:

(1) Cut off and discard light and other areas as per Weico Instruction sheet.

(2) Build up the undriven end of the chassis, using layers of plasticard, to a height dictated by the body. The body should sit on the layers such that the bogies clear the bottom of the body.

(3) Build up the driven end, on top of the bogie mounting box (gear box) to the same height as detailed in (2) above.

(4) Place this modified chassis into the body and check for level. File off the plasticard where necessary.

(5) Drill and screw (using a small self-tapping screw) through the chassis (just behind the motor) into the piece of plasticard glued across the body.

(6) Test run the loco.

The way we see it now, all the weight is on the ends of the chassis and the centre is now held in a level position, thus eliminating the bowing.

We have found this method mounts the chassis in a more secure manner and has so far given trouble free operation.

Barry and Anthony Wood

KEYS AND LOCKS

Eleventh in the series by Arthur Perry.

The keys and locks referred to in this article are only those which provide some degree of simple interlocking between mechanical levers and/or lever-frames scattered over a relatively wide area.

Drawer Lock.

A drawer-like slide into which the staff or tablet token, for the single line section concerned, can be placed. Once the token is correctly positioned the slide may be pushed home the full distance, unlocking the lever it is connected to. If part of a lever-frame, this lever will release the other levers to permit shunting, etc. Upon completion of the train movement, all levers are returned to the 'normal' position allowing the draw-slide to be moved back to its normal position and the token removed, to permit the train to proceed or clear the section.

Where more than one lever frame key is involved at one location the drawer-lock would control a 'key release', which in turn releases an Annett key which is used to unlock the various levers.

Annett Lock.

This rugged simple piece of equipment is named after its inventor of many years ago. It is purely mechanical (see Photo 1.) but can be used to control electrical circuits involved with signalling, etc. It is so designed that when it is attached to a mechanical lever the key can only be removed from the lock after it has been turned to lock the lever in a predetermined position. If the lever is in any other position the lock cannot be turned or the key removed. This one key can control (interlock) several lever-frames and/or individual levers at scattered locations throughout a yard or section of line (e.g. staff or tablet section).

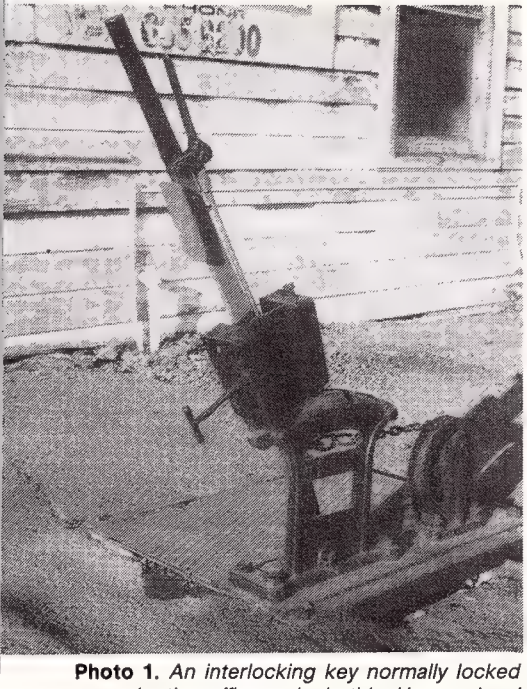


Photo 1. *An interlocking key normally locked away in the office unlock this Home signal lever. Once the lever is in the 'normal' (stop) position the key shown can be turned and withdrawn to release other levers in the yard concerned.*

Previous articles in this series are:-

An Introduction to Railway Signalling	Mar/Apl 79
Railway Signalling Terminology	Jul/Aug 79
Auto Single Light Signalling	Sep/Oct 79
Auto Two Light Signalling	Nov/Dec 79
Mechanical Signalling	May/Jun 80
Train Order Working	Mar/Apl 81
Automatic Crossing Loops	Sep/Oct 81
Mechanical Signalling...Single Lines – 1	Apl 82
Mechanical Signalling...Single Lines – 2	Aug 82
Mechanical Signalling...Single Lines – 3	Feb 83

Electric Key Release.

This may be used on double or single track sections and may be controlled by either the local signal box or track circuits to prevent its operation when it could pose a hazard for an approaching train.

An electric releasing switch is provided above an Annett lock which is unlocked by turning the switch handle after that has been released by the signal box or by the track circuits. The Annett key can then be turned and withdrawn and used to unlock other lever frames or electrical circuits to permit shunting to take place. Upon completion of shunting movements, and all levers are back in the 'normal' positions, the Annett lock is placed back into its lock and turned to its 'normal' position. The door on the releasing switch cannot be closed and locked unless the switch handle is in the normal position. In the case of a signal box the signal man is notified that shunting is completed and everything returned to normal.

TYPES of KEYS

The keys have various shapes and inscriptions to distinguish them from each other and are classified according to their function. The names applied to some vary from state to state but we will look at the New South Wales practice and only examine the relatively common examples, not the special ones.

Loose Key (V.R. Master Key).

Where it is desired to allow a train using a 'ticket' or 'line clear report' (which on the Victorian Railways must be endorsed 'master key') to shunt intermediate sidings in a staff section, a 'loose key' is provided. The key is fitted with a receptacle to contain/retain the 'ticket' or 'line clear report'. When not in use 'loose keys' are locked away to prevent unauthorised use.

Bank-Engine Key.

Where a steep grade does not extend very far through a staff section, these keys are used to prevent another train from entering the section before the locomotive which has been 'banking' (pushing) a train up the steep grade has returned clear of the section.

When not in use the key is placed in an Annett lock, usually in a signal box. When the key is withdrawn it prevents the issue of a staff for the section and entry of any other trains to the section. Once withdrawn, the key is shown to the driver of the train engine (in front) when he is given the staff or tablet for the section. The bank-key is then handed to the driver of the 'bank-engine'.

The key has a round shape and is inscribed with the name of the starting point and the point to which the bank-engine may assist a train, given as a distance (in kilometres).

On the V.R. bank-engine keys are found on double track sections where the bank-engine is permitted to return to its starting point 'wrong road'. The key is handed to the 'bank-engine' driver by the signal man as the train passes.

Interlocking Key.

These keys have a 'T' handle (see Photo 1.), and provide interlocking between two or more lever frames, or a lever-frame and a drawer-lock, electric key release or electric switch box.

Variations of interlocking keys using bow shaped handles are Guard's keys, Closing keys, Gate (level crossing) keys and Reverser (signal) keys. Other variations are the 'Shunting keys' and the 'Shunting key staff'.

Shunting Keys.

These keys permit shunting outside a home signal at a single-line crossing station, the keys having either a square or triangular head inscribed with the end of the yard it applies to.

Shunting Key Staff.

This key permits shunting inside the Outer Home signal providing that the signal is at the stop position and the section extending outside the signal is clear. The key is a standard interlocking key with a square handle which is inscribed with the points between which it is applicable. The key does not resemble a staff, and it is taken from an electrical switch and releases points between the signal box and the Outer Home signal concerned.

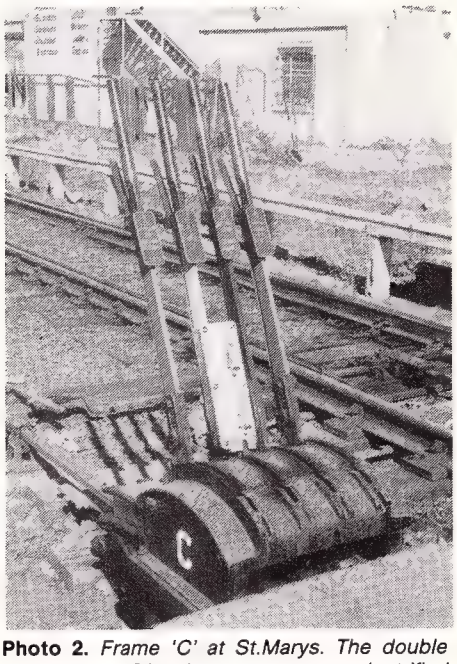


Photo 2. *Frame 'C' at St.Marys. The double lock on lever 2 involves access to an electrified siding which is normally kept dead for safely unloading rail wagons with a crane. A key from the lock controlling the isolating switch for the overhead power for the siding and a bow shaped handle 'guards' key must be used to fully unlock the lever.*

SCENIC ROUTE

SCENIC ROUTE this issue features the 1983 Chatswood Model Railway Exhibition, as seen through Alan Templeman's camera.

Top Left: *The river scene on the HOn3 'Sandy River and Raglyn Lakes' layout which featured American narrow gauge models and mountain scenery.*

Left: *Roundtop 3608, streamline 3805 and diesel electric 4415 make up a busy scene at Mount York, on the HO Western Division layout owned and operated by John McBeth.*

Above: *44100 in the new (candy stripe) SRA of NSW livery on the turntable of the Dubbo Model Railway Club HO scale layout.*

Above Right: *The peaceful English countryside is shattered by the sound of the branchline passenger train on David Lord's Hamworthy (Old Pool) 4mm scale Southern Railway layout.*

Lower Right: *A.Matherson's OO scale layout featured operation on a Great Western Railway branchline.*

MODEL RAILWAY TIME TABLES – WINGROVE STYLE

By Jack McLean

The Wingrove Line has never had any scenery and, to a large number of operators over its 26 years, it doesn't seem to have mattered. Perhaps this paper will give some indication of why it doesn't.

When YOU go out and watch trains, what do you look at? Most modellers, I think, look at engines and rollingstock and then maybe buildings and other railway facilities; and then perhaps scenery, most of which is outside the railway fence. On the other hand, what I watch mostly is the activity of the blokes in their endless attempts to get the trains to their destinations safely and, we hope, on time.

The parts of the railway which primarily interest me are the stations, and the designing of the tracks there, which are tangible.

Then I come to the intangibles, which I also attempt to model; the methods of operating trains at stations, and between stations, and the timetables and the instructions which tell the blokes what has to be done and how.

What is a Railway?

As I see it, the railway is a system whose management expects to make a profit after transporting passengers and goods from origins to destinations and making a charge for the service.

The railway consists of stations, origins and destinations and other places like junctions, marshalling yards and loco depots. These places are often quite separate from each other and trains are passed from station to station by signalmen. The signalmen allow the trains to move:

(a) at the appropriate time shown in the timetable or when directed by the train controller; and

(b) when it has been ascertained that it is safe to do so.

In the event of breakdowns, late-running etc., the signalmen, under the directions of the train controller, do their best to maintain some sort of service and get the trains back on time. The continuous solving of problems on a real railway is fascinating to watch, and to think about afterwards. Unfortunately, it is not always known where something interesting is going to happen, even if we are well-informed and it is not always convenient to be at the right place at the right time. Moreover, the railway, for very good reasons, discourages the amateur from trying his hand at the problem solving.

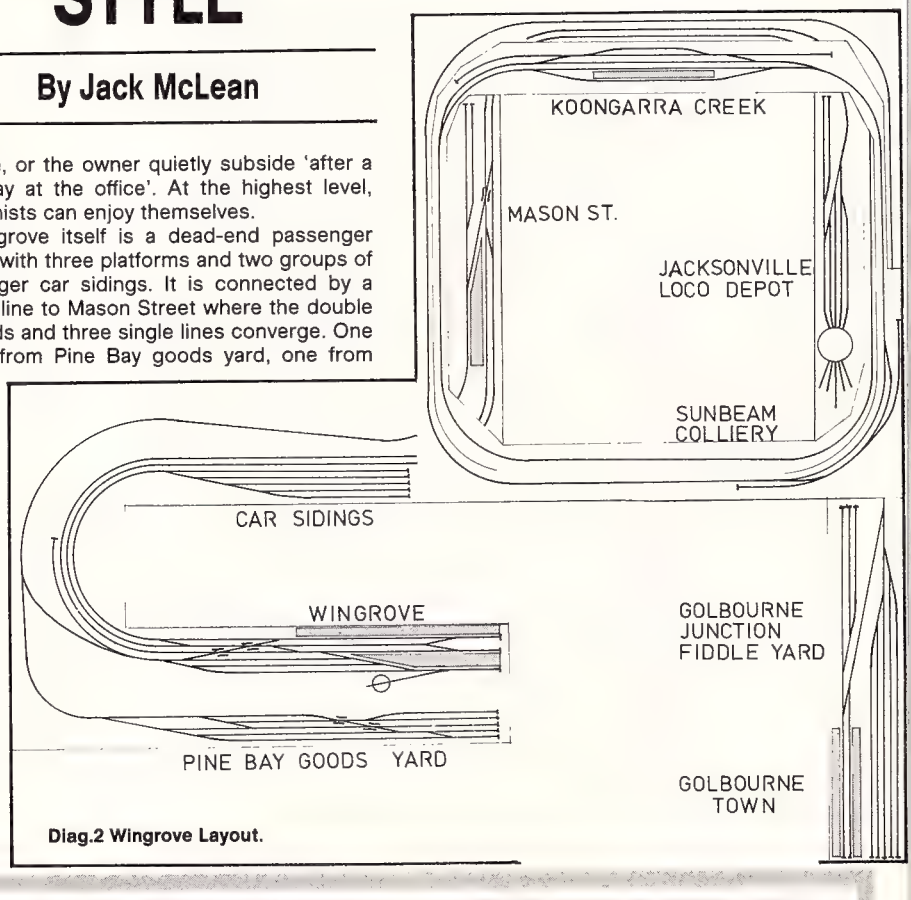
And so, in order to watch when I want to, to participate in and solve railway problems of my own, I build my own model railway. It is really a very small railway, but it has quite a selection of different sorts of railway places which provide variety in normal processes, and even more variety when things go wrong.

Now, this article is supposed to major on timetables on model railways, but before we can satisfactorily run timetables, there are a number of prerequisites. Stations must be designed *so that they can be operated* (as distinct from looking good); there must be definite stretches of 'main line' between them. There must be some sort of communication between operators (a block system?) and consideration must be given to the time which will be used.

The Stations.

Within the limits of the available space (a single garage to which a shed is attached), the Wingrove line now has seven stations (Diag.2) each one different from the rest. This not only achieves the variety just mentioned, but also provides a sort of seniority system. At the lowest level of this, the newcomer can learn to operate, or the owner quietly subside 'after a hard day at the office'. At the highest level, masochists can enjoy themselves.

Wingrove itself is a dead-end passenger station with three platforms and two groups of passenger car sidings. It is connected by a double line to Mason Street where the double line ends and three single lines converge. One line is from Pine Bay goods yard, one from



Diag.2 Wingrove Layout.

Wingrove in action.

A visit to Wingrove is, in itself, an experience.

Entry is via the side passage, and on a dark moonless night there was a need for care, for there was little light and the ground was rough.

Rounding the side of the house, there was a light emitting from the garage and from within there was a murmur of voices. There was a cheerful welcome by the host at the door and only a second or two to observe the surroundings before all hell broke loose.

Bells rang, voices cried out, trains moved – some slowly – some at breakneck speed. Wingrove was in action.

As the night grew, voices became heated, some trains travelled faster, curses were heard, more bells rang, and then it happened . . . disaster. A crash. A collision.

For a second, silence ruled. The clock was stopped. A court of enquiry was called. Witnesses were heard. Tempers became heated. Arguments were qualified. The jury retired and the verdict was given.

Trains re-railed, the clock was re-started, bells began to ring again. The night drew to a close, bells became silent, trains become stationary and the events of the evening were analysed.

The layout is simple, basic track and boards. The models were standard proprietary equipment and train speed was generally very fast. Operators included modellers from all avenues of the hobby and included the host's family, male and female.

Yes they enjoyed themselves, and maybe that is why Wingrove has been in action for over 29 years. ■

– Bob Gallagher.

Jacksonville Loco Depot and the third is the single main line to Koongarra Creek. The Creek is a crossing station, with island platform and three loop sidings. It is also the terminating point of a number of local passenger and goods trains. The single main line continues on through Sunbeam Colliery Siding which has only meagre crossing and goods facilities and terminates (in fact) at Golborne Junction which is:

(a) a Fiddle Yard to accommodate the long distance trains which, in imagination, originate at or continue on to distant parts; and

(b) a small outer suburban terminus.

Each station has its own built-in difficulties, some intentional and some accidental. For example, Wingrove has three platforms, at which occasionally four trains need to be accommodated. Sunbeam Colliery Siding should not accept two opposing trains, as the total length of both will be too long for the siding. Jacksonville must send out engines appropriate for the rostered trains, with the driver's cab of single-enders at the right end. Also, the operator of Jacksonville must ensure that he gets engines back from one task BEFORE they are needed for the next. Mason Street is referred to as Masochist Junction. I wonder why?

The Trains.

Quite a large variety of trains is possible even on such a small railway because, of course, it joins on to other railways by way of the Fiddle Yard. Express, mail, country passenger, express goods and fast goods trains start and finish at Golborne Junction (Fiddle Yard). Local passenger, rail motor and local goods trains start and finish at Golborne (Town) Station. Golborne Junction (Fiddle Yard) is normally the only place where the 0-6-0 shunter is permitted. The 'workmen's trains' run only between Wingrove and Koongarra Creek. Light engines join the main line at Mason Street and then take up duty at Wingrove, Pine Bay or Koongarra Creek and return to Jacksonville when finished.

The Essentials.

As model railways go, the Wingrove Line is larger than average, but the essentials were all contained in the first line we built 26 years ago. If you are starting out from scratch NOW to build a railway for timetable operating, you will probably find that a terminus, a crossing station and a fiddle yard (the latter may be consisting only of a piece of straight track) will suffice, as it did for us. I remember when it only had five pairs of points but I have forgotten the track layout at that time. It was something like the one shown in Diag.3 but you will note that even here there was a variety of stations with an implied seniority system and definite stretches of main line between them.

As for trains, at that time we only had a Hornby Duchess which ran the express and a Gem 57xx Pannier Tank which ran the passenger and the goods. But we still had a lot of fun.

The Block System.

Earlier, I said that the railway carried out its work by sending trains from station to station by signalmen when it was safe to do so. A real signalman can rarely see as far as the next station to which he is sending a train and so he must ensure, by other means than sight, that the line IS clear when the train is sent. This is most important on a single line where an error could result in a head-on collision. The process by which a train is only sent when the line is POSITIVELY known to be clear is often referred to as the block system, the section of main line between the two stations being known as the block.

The equipment used on real railways to establish that the line is clear ranges from telephones to electronics but it is the telephone end of the scale with which I am dealing here.

A very simple block system can be maintained by signalmen exchanging messages over the telephone such as:

Is line clear for train?

Yes, line is clear for train.

Train departing (which is acknowledged); and

Train arrival (which is acknowledged).

However, a party line telephone (or spoken block messages in a crowded garage) has proven unworkable on a line as busy as the Wingrove Line, even as it was 20 years ago. In any case, some sort of indicator is needed to show the state of the block as to the presence or absence of trains. A 'Train Register' book is not completely satisfactory on a real railway and of no value at all on a model. The necessary messages can be sent by tappers and single stroke bells. If the indicators, which on a real railway only SHOW the state of the block, can on the model direct the flow of traction current to the block, we have a nice situation where the train CAN'T go through the block unless the block procedures have been observed.

Of course, it is possible to extend the area controlled by one operator half-way to the next station, making an end-on junction with the area controlled by the next operator. But such an arrangement requires BOTH operators to have their controllers in the same direction AT THE SAME TIME to get a train through from one station to the next without stopping. A further disadvantage of this mid-section junction arrangement is that, when crossing two trains, the train 'in the siding' will have to wait there until the train 'on the main line' is halfway to the next station before it can leave. On a short line this wouldn't matter but on the present Wingrove Line the resulting delays would be intolerable. At present, as shown in Diag.7, we are using five-position two-pole wafer switches to:

(a) indicate the five conditions of the block; and

(b) to direct current of the appropriate polarity to the rails of the block.

The five positions of the block instrument on the 'Up' side of a station are as follows:

Up train going

Up train offered

Line closed

Down train accepted

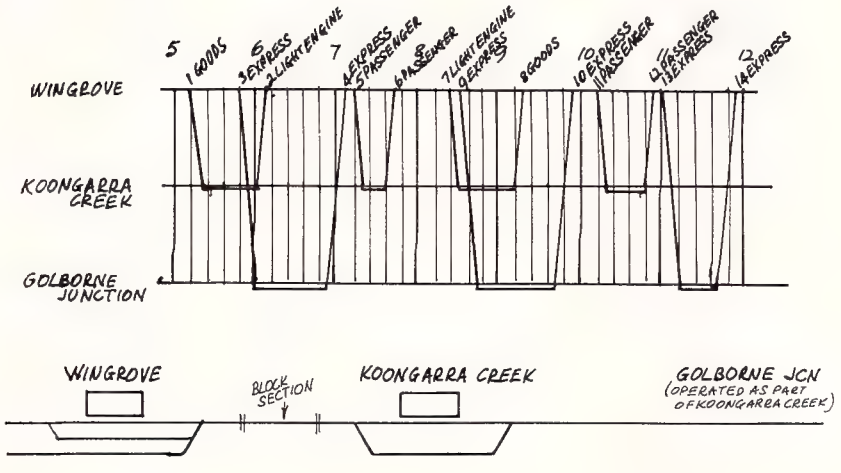
Down train coming

and vice versa for the block instrument on the Down side. The block indicator at the Up end of the section puts, say, positive current onto the rail of the block, while the indicator at the Down end of the block, when in the same relative position, puts negative onto the other rail. The block instrument for the double line must have two indicators, one for the Down line and the other for the Up line but they are, in fact, wired up identically to those on the single line. They can therefore be used for a single line when, for instance, there is a derailment on one line. Diag.1 shows the complete arrangement at one station.

Of course, when a train hits the block it will get the full 12-volt power but we don't notice it any more as the station limits are mostly a train length out of the station. By the time the train enters the block, the controller at the station is probably full on anyway. Once again, this is all very well for a long established railway but how can this be done on a small line 'with the minimum of fuss'? A simple block instrument can be made with a telephone key working sideways and wired as shown in Diag.7.

Therefore, if both block keys are pointing, say, in the Up direction, one of them will put positive current onto one rail and the one at the other end negative onto the other rail. When the keys both point in the Down direction, the first one will put negative onto the relevant rail and the other key will put positive onto the other rail.

Single stroke bells would be nice. A long



WINGROVE LINE

WORKING TIME TABLE NO 1

3RD JULY 1954

DOWN TRAINS	1 Goods	3 Express	5 Pass	7 Light Engine	9 Express	11 Pass	13 Express
Wingrove	5.12	5.48	7.12	8.24	8.30	10.12	11.00
Koongarra Creek	5.18	5.54X	7.18	8.30	8.36	10.12	11.06
Golborne Junction		6.00			8.42		11.12

UP TRAINS	2 Light Engine	4 Express	6 Pass	8 Goods	10 Express	12 Pass	14 Express
Golborne Junction		6.54			9.42		11.42
Koongarra Creek	6.00X	7.00	7.36	9.12	9.48	10.48	11.48
Wingrove	6.06	7.06X	7.42	9.18	9.54X	10.54X	11.54

Diag.3 Wingrove Line — First Timetable 3.7.54.

time back we used spoken block messages and it was good fun, particularly when we had a Lancashire accent at one end and a Nottingham accent at the other
(Trairn wairting. Well Trairn can !?—*!? well wairt ...).*

Even further back, I remember experimenting with saucers hit with tea spoons.

Real railways have an incredible number of bell codes but we have managed with those shown on Table 1.

TABLE 1
Wingrove Line Code of Bell Signals

Call Attention	1
Is line clear for:	
Express/mail	4
Passenger	3 pause 1
Workmen	1 pause 3
Rail car	2 pause 1 pause 2
Empty cars	5
Fast goods	5
Goods	1 pause 4
Light engine	2 pause 3
Train departure	2
Train arrival	3
Train waiting	3 pause 2 pause 1
Opening signal box	3 pause 3 pause 3
Closing signal box	3 pause 4 pause 3
Obstruction danger	6

Time.

Unless the timetable is an attempt to be run against some form of TIME , it degenerates into a sequence table. In such a case, any operation at all has all the time in the world in which to be completed and therefore poses no challenge to the operators' ability or ingenuity, particularly in the idea of 'getting back to timetable running'.

In addition, a sequence table often poses difficulty in co-operation between operators. This occurs when one has a simple task and is ready to send a train long before another, who has a difficult task, is ready to receive it. I am sure that working against time is the only way to gauge whether your railway works well or otherwise. In addition, for several reasons, I consider that some form of fast time is warranted.

The actual distance, end to end, on the Wingrove Line is about 40 metres and, at a scale of 1:87, this represents no more than three kilometres. Yet, in this distance, we have managed to build five (compressed, admittedly) stations. Can you name any real railway with five consecutive stations in three kilometres? Even if we slow down the motive power either mechanically or electrically, a train will still run from one end to the other in less than two minutes. Therefore, if we use real time, we will have to use minutes and seconds in the timetable which will certainly be unrealistic and possibly even confusing. Instead, we use clocks that are speeded up so that an hour is covered in 7½ minutes, or a minute in 7½ seconds. As a result, not only can the timetable be expressed in realistic hours and minutes, but the line will appear to be eight times as long because the clock will cover 16 minutes instead of two during the running of a train from end to end.

An extra bonus of this is that a day's work on a real railway (say from 6 a.m to 10 p.m.) can be 'modelled' in two real hours. This is probably a reasonable 'real' time for the average operating session. In these '16' hours you can have the whole gamut of operations: the overnight sleeping car train; the mail; the country passenger; the workmen's trains which arrive in the morning and leave in the evening; the 'day express' which leaves Wingrove at 10.30 a.m., after the morning peak which is quite busy, and so on. The Wingrove Railway these days has four strategically placed electric wall clocks powered by a 24 volt transformer. Their 'impulse' operation is provided by the impulse given every 7½ seconds by a windscreen wiper speed adjuster.

If you are just starting this timetable business, you might like to do what we did when we started — use any ordinary clock, with no alterations at all. Ignore the hour hand and regard the minute hand as if it were the hour hand. In this way you will get a five-minute hour and you can use half-minutes to show six-minute intervals. You must be careful only to use multiples of six minutes in your timetable.

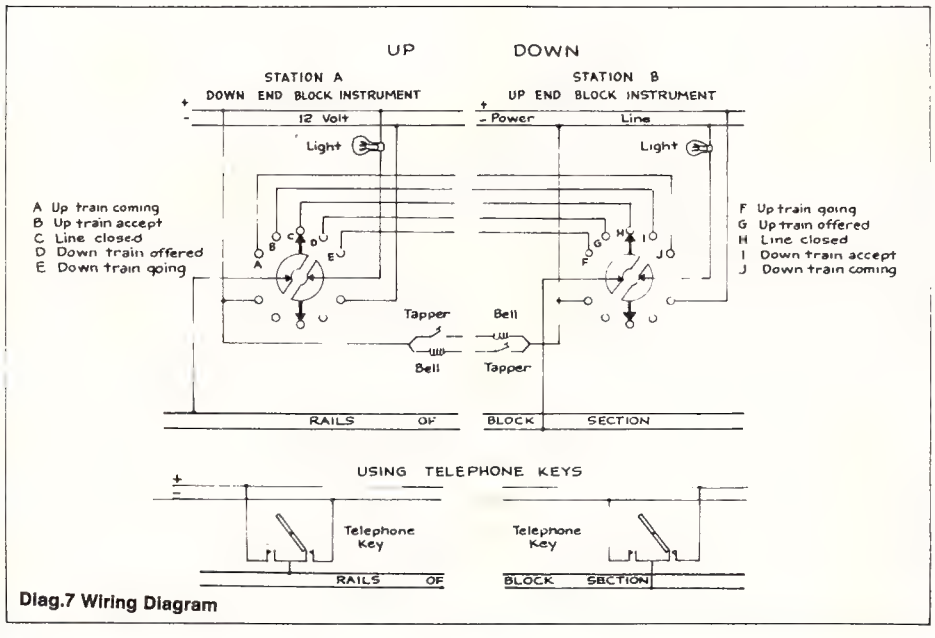
The Graph.

Between the seven places on the Wingrove Line, the movements of trains are, at least in the first place, directed by the timetable. The timetable is easily derived by means of a 'train running graph' on which 'distance' lines, representing the stations, are shown horizontally; 'time' lines, representing hours and minutes, are shown vertically. This is the conventional way of drawing them. The timings of trains are shown by diagonal 'theory' lines. In the timetable you will see that a light engine, No.502, leaves Jacksonville at 6.30 a.m., passes Mason Street at 6.32 and arrives at Wingrove at 6.34. It goes to No.2 Platform to attach to the passenger cars, which incidentally have been there since the 'day' before. On the train graph, you will see the number 502, near which is a diagonal line (the theory line of the light engine), which joins the intersections of Jacksonville/6.30, Mason Street/6.32 and Wingrove/6.34.

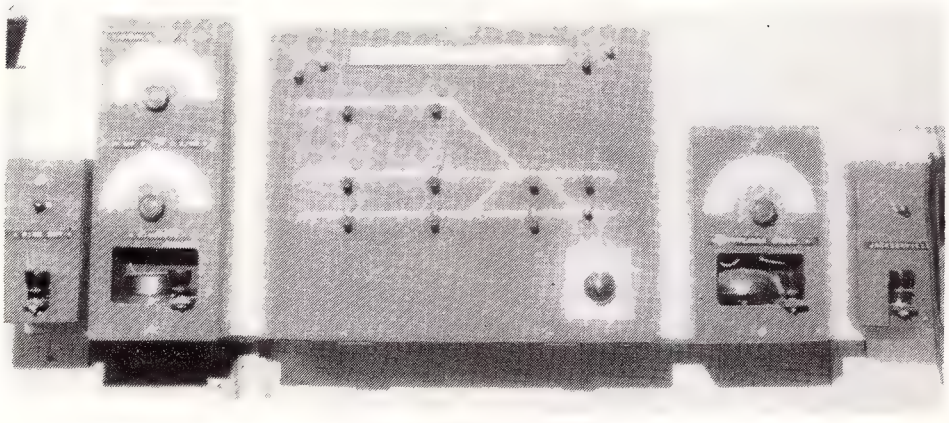
Again on the timetable, you will see that No.21 Passenger leaves Wingrove at 6.43 (after the engine has arrived as No.502), passes Mason Street at 6.45 and arrives at Koongarra Creek at 6.51. It waits at the Creek until 7.10 and then it returns to Wingrove as No.22 Passenger. The diagonal lines representing these two trains can also be seen on the graph. At 6.50, No.150 fast goods leaves Golborne Junction (Fiddle Yard) and, after passing Sunbeam Colliery Siding at 6.55, goes through Koongarra Creek at 6.56 on its way to Pine Bay. At 6.56 the passenger train is, of course, at Koongarra Creek as well (safely tucked away in the back platform road) and the two theory lines for these two trains also cross there. The horizontal line for the passenger train between 6.51 and 7.10 shows that, while time marches on, the passenger train doesn't. The line is shown slightly above the Koongarra Creek Station line, so that it can more readily be seen.

Incompatabilities are soon apparent on train graphs, such as an error in a proposed timetable which has two trains in opposite directions in a single line section at the same time. This is shown up by the theory lines meeting at a point which was neither a crossing station nor a double line.

In addition, the graph is readily interpreted to show that there is (or is not) a balance of engines and rollingstock; in other words, what goes Down must come Up. At any given minute, it will show the whereabouts of all trains and light engines etc. Following on this, the compiler of the timetable can ensure that the timetable does not call for more equipment than the railway actually has.



Diag.7 Wiring Diagram


Diag.1 Typical Control Panel.

Down Trains

No Class Formed By		21 PASS 502	501 LEP 150	23 PASS 22	593 SPL 508	503 MOTO 16	505 LEW 50	61 RC 60	101 GDS 510	507 LEW 6	509 LEW 40	25 PASS 24	511 LEP 152	103 GDS 512	1 EXP 5122	63 RC 62	513 LEW 26	27 PASS 26	11 MAIL 516	515 LEP 102	151 FGDS 518	65 RC 64	517 LEW 2	29 PASS 28	519 MOTO 12	5199 LEP 1044	153 FGDS 520	111 TGDS 522	521 LEP 154	67 RC 66	105 GDS 524
Wingrove	d	6 43	-	7 33	-	8 07	8 35	8 40	-	9 10	9 15	9 30	-	-	10 30	10 40	10.50	11 54	12 05	-	-	12 40	12 50	1 25	1 42	-	-		-	2 40	-
Pine Bay	d	-	7 25	-	-	-	-	-	9 05	-	-	-	9 33	9.55	-	-	-	-	-	12 07	12.25	-		-	-	1 54	2 00	2 20	2 35	-	3 05
Mason St	a	-	-	-	-	8.10 X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1 44 X	-	-	-	-	-	-
	d	6 45	7 27	7 35	7 58	8.25	8 37	8.44	9 07	9.12	9 17	9 32	9.35	9 57	10.32	10 44	10.52	11.58	12.07	12 09	12 27	12.44	12 52	1 27	1 54	1 56	2 02	2 22	2 37	2 44	3.07
Jacksonville	a	-	7 29	-	-	8.27	8 39	-	-	9.14	9.19	-	9.37	-	-	-	10.54	-	-	12 11	-	-	12.54	-	1 56	1 58	-	-	2 39	-	-
Koongarra Ck	a	6 51 X	-	7 41 X	8 04 X	-	-	8 52 X	9 13 X	-	-	9 38 X	-	10.03 X	-	-	-	12.04 X	12.13 X	-	-	-	-	-	-	-	-	-	-	2 52 X	3 13 X
	d	-	-	7.48	-	-	-	8 57	9 50	-	-	-	-	-	10 38	10 52	-	-	12.19	-	12 33	12 52	-	1 33	-	-	2 08	2 28	-	2 57	-
Sunbeam Col	a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	d	-	-	7.49	-	-	-	8.59	9 51	-	-	-	-	-	10 39	10 54	-	-	12 20	-	12 34	12 54	-	1 34	-	-	2 09	2 29	-	2.59	-
Golborne Jn	a	-	-	7 54 1	-	-	-	9 05 1	9 56 2	-	-	-	-	-	10 44 3	11 00 1	-	-	12.25 4	-	12 39 3	1 00 2	-	1 39 1	-	-	2 14 3	2 34 2	-	3 05 1	-

Up Trains

No Class Formed By		502 LEW on	504 LEP on	150 FGDS on	22 PASS 21	16 MAIL on	506 LEW on	508 SPL on	60 RC on	50 CP on	6 EXP on	510 LEP on	40 WKMN 593	24 PASS 23	152 XGDS on	512 LEP on	62 RC 61	5122 LEW on	26 PASS 25	102 GDS 103	514 LEW on	516 MOTO on	64 RC 63	104 GDS 101	518 LEP on	2 EXP 1	28 PASS 27	12 MAIL 11	1044 GDS 104	520 LEP on	522 LEP on
Golborne Jn	d	-	-	6 50	-	7 21	-	-	7 38	8 00	8 16	-	-	8 28	8 49	-	9 38	-	-	-	-	-	11 38	11 50		12 11	-	1 02	-	-	-
Sunbeam Col	a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	d	-	-	6 55	-	7 26	-	-	7.44	8 05	8 21	-	-	8 33	8 54	-	9 44	-	-	-	-	-	11 44	11 55	-	12 16	-	1 07	-	-	-
Koongarra Ck	a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11 56 X	-	-	-	-	-	-	-
	d	-	-	6 56	7 10	7.27	-	-	7 46	8 06	8 22	-	8 29	8 34	8.55	-	9.46	-	10 24	11 20	-	-	11 46	-	-	12 17	12 37	1 08	1 15	-	-
Jacksonville	d	6 30	6 55	-	-	-	7 43	7 47	-	-	-	8 31	-	-	-	9 25	-	10 12	-	-	11 30	11 32	-	-	11 58	-	-	-	-	1 35	1 47
Mason St	a	-	-	-	-	-	-	7 49 X	-	-	-	-	-	-	-	-	-	-	-	-	-	11 34	-	-	-	-	-	-	-	-	-
	d	6 32	6 57	7 02	7 16	7 33	7 45	-	7 54	8 12	8 28	8 33	8 35	8 40	9 01	9 27	9 54	10 14	10 30	11 2.	11 32	11 44	11 54		12 00	12 23	12 43	1 14	1 21	1 37	1 49
Pine Bay	a	-	6 59	7 04 1	-	-	-	-	-	-	-	8 35 1	-	-	9 03 2	9 29 1	-	-	-	11 28 1	-	-	-		12 02 2	-	-		1 23 1	1 39 2	1 51 3
Wingrove	a	6 34 2	-		7 18 2	7 35 1	7 47	-	7 58 2	8 14 3	8 30 1	-	8 37 3	8 42 2	-	-	9 58 3	10 16 1	10 32 2	-	11 34 2	11 46 1	11 58 2	-	-	12 25 1	12 45 2	1 16 1	-	-	-

Diag.4 A section of current Wingrove working timetable.

The Tabulated Timetable.

Signalmen, train controllers and others need to know the times of all trains at all stations. They need, also, information such as type of train (passenger or rail motor), and where trains are to meet on the single line. This information is contained in the working timetable. Whereas I have described the graph as following on from the timetable, in actual practice, the reverse is true. The whole service is planned on the graph and later translated into a tabulation.

Of course, we prepare our tabulation on a computer (big deal) but it wasn't always as elaborate. Our first timetable was written out on a page of a note book and carboned through onto the second page. In these days of computer paper and one-time carbon, it is quite easy to type the required seven copies of a special train notice at one strike. You might think, and my wife still does, that the regular running of the same timetable might be monotonous, and at one time I did too. I thought it would be necessary to have a pack of cards to introduce incidents to relieve the monotony, such as 'The rail motor won't be available tonight'. But, in practice, this is not so, as the frailties of the track and the rollingstock, not to mention the vicissitudes and general unpredictability of the operators, vary the programme sufficiently for a whole range of new problems to be solved each session. On one occasion, the rail motor wasn't available because my then young son, who owned it, was using it on his own railway and so we couldn't find it. Twenty years later, on one of his frequent visits, he said in amazement "That's the first time I've EVER seen you run all your passenger trains on time". Regretfully, I must admit that his remark was justified.

Train Control.

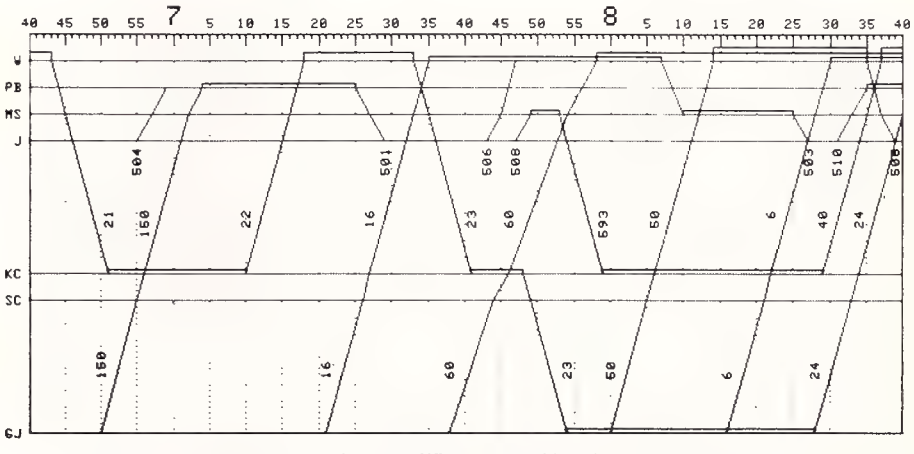
One of the reasons that we know that our trains are indeed running late is a train graph maintained by the Train Controller. He has a copy of the timetable graph, showing on it the timetable times of all trains and he is kept informed of what is actually happening by messages from individual stations. The train controller does the plotting of the ACTUAL theory line (usually in red, so that they show) and a comparison with what should have happened is thus available. For a long time, the messages have been shouted across the garage, but the telephone system is working again and train control has a nice cosy corner where he knows (we hope) what is going on without actually seeing any trains. It is, however, another job for a masochist.

Conclusion.

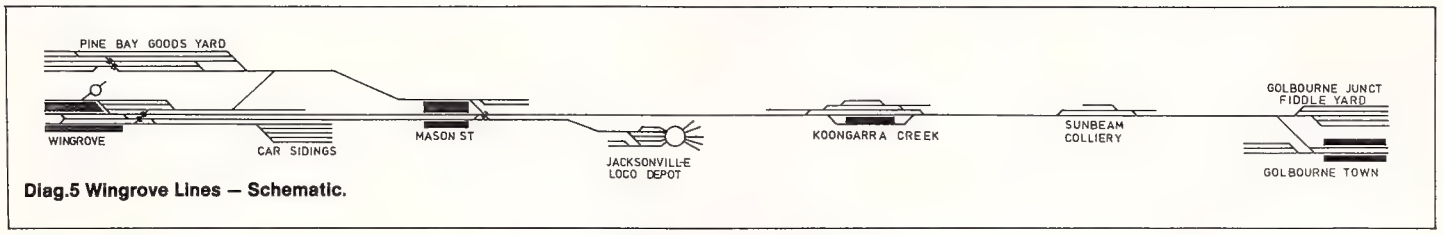
This not the ONLY way to run a model railway. It is not even the ONLY way to run one by timetable. Bearing in mind the rather drab garage, the complete absence of scenery and the generally decrepit rollingstock (some items were secondhand 27 years ago), we've really belted out a lot of man-hours of enjoyment for a particularly small outlay. Someone said that there are a lot of railways that are beautiful to look at, and perhaps even more that run well, but precious few in both categories. I have been told often enough that the Wingrove Line runs well; it certainly has been running a long time. When some of the operators have been coming here for ten and fifteen years, this timetable business must have something.

A model railway is inevitably a compromise. There is never enough money or time or space or ability or help or wifely sympathy, or something. So to do some of the things you would like to do, you will almost certainly leave out some of the things which you don't want quite as much. There are a lot of things missing on the Wingrove Line but there sure is a lot of OPERATION and, as my neighbour once asked,

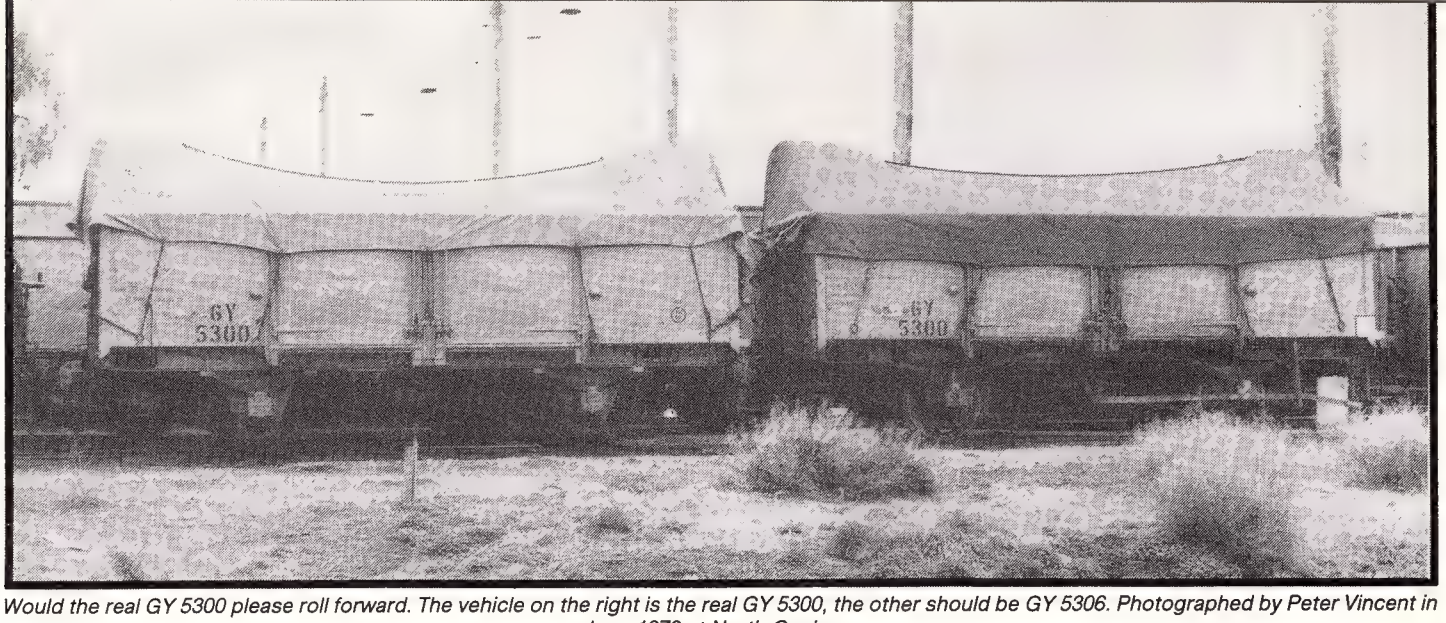
"Who else has entertained thirty people in a garage for three hours without a niner?" ■



Diag.6 A section of current Wingrove working timetable graph.



Diag.5 Wingrove Lines — Schematic.



Would the real GY 5300 please roll forward. The vehicle on the right is the real GY 5300, the other should be GY 5306. Photographed by Peter Vincent in June 1978 at North Geelong.

The two wagons arrived at Geelong on different trains from different locations. When it was found that there were two wagons with the same number they were coupled together to avoid confusion. GY 5306 has since recovered its true identity.

WHAT GOES DOWN, MUST COME UP!

By Peter J. Vincent

I am sure that most readers would be familiar with the story of the wagon shunted over the end of a pier. A diver is lowered to retrieve this wagon and surfaces minutes later to surprise enthralled onlookers with the words:

"Which wagon did you want?"

It is not surprising that such shunting incidents occur for any rail network with an interchange between land and sea.

This story of the wagon over the pier has been countlessly retold by rail staff to new employees and to the public when the opportunity arises. Yet for the number of times I have heard the story related I have never met a witness. It seems to have happened a long long time ago. So strong is the legend of the fact, that any vehicles reported as missing are dismissed with the words:

"Try the bottom of ..." (your favourite pier here).

So where do these missing vehicles go? It seems incredible that some pieces of rolling stock can vanish without a trace. For some wagons can be missed a few days or weeks and others disappear never to be found, except for the cryptic and mystical wording on official records as 'Not traced at Stocktake and removed from Register'. The clue to missing stock lies in the record gathering. In most cases the vehicle may still be around physically but drastically altered in shape and no longer carrying the original number.

My involvement in rolling stock research over the past few years has uncovered some disappearing 'acts' which can account for vehicles temporarily and permanently missed. These 'acts' I have presented as separate items show how a vehicle can literally disappear. I have no doubt that these same examples have occurred in other rail systems and are not unique to Victoria.

(1) Some vehicles are stationed on home territory for so long that they remain ignored or forgotten. Quite often so-called 'missing' vehicles are traced back to where they were in the first place. They have not moved at all.

(2) A familiarity of wagon and class types can lead to mistakes. With recent conversions of revenue stock to wheel and bogie carriers over the last few years, the recoded stock can be wrongly identified. In one case a bogie carrier was missed and then 'found' several days later. The fellow searching for the HR bogie carrier dismissed a far away vehicle in the yard as an E bogie open. This, however, was the wagon being looked for. With the superstructure unchanged and only the lettering altered, a visual assumption was made and the vehicle ignored.

(3) A vehicle mislettered after a repaint can be interesting. Vehicles can re-enter service with wrong digits, wrong letters in the code and even numbers reversed and missing. In one instance I have photographed two GY wagons coupled together and both carrying the same number. Both were numbered 5300. A quick check of both vehicles showed one to be actually 5306 wrongly numbered. Needless to say, the Yard Foreman was very happy after being informed of the correct number. Three other vehicles are worth mentioning:

H 96: This van should be number 964. The Register shows H 964 but in pencil below the H entries an H 96 appears from nowhere as a visual sighting.

W 144: A works sleeper carries this number incorrectly. W 144 was scrapped in 1946 and this new van is a 1958 conversion. The correct number should be W 441.

WW 441: This bogie works sleeper also carries a wrong number. The WW group runs numbers to 176. The 441 is a 1960 conversion and the number should actually be 144. How these numbers were reversed I just don't know. Only if they were lifted and repainted in the same workshop at the same time could the numbers be mistakenly swapped.

(4) It is true to say that not all people know all things. Because of the time lag between work being done and the upgrading of written records, only a few people seem to know what is going on. Often out of curiosity, information on a vehicle is wanted. Surprisingly, nobody knows. Yet the vehicle is around and relative information has not filtered through.

(5) I have found in research that some records of scrappings or conversions do not follow through due to incorrectly marked lists or lists that just don't arrive, i.e. seemingly lost. Incorrectly marked scrapping lists particularly create problems which can make vehicles vanish. Some wagons are advised as follows: Scrapped — NLDW 780. The wagon NLDW turns out to be the lettering Newport Lift, Due Workshops and the number then becomes a date — 7/1980. So now the problem. What WAS the vehicle scrapped? I believe that these incorrect reportings are recorded in good faith and that '. . . Head Office will know . . .'. So why these odd reports? In some cases the code and numbers of wagons in storage are obliterated by age, overpaint and weathering leaving scarce markings for identification. And, of course, Head Office does not know either, leaving another wagon to 'vanish'.

(6) For this section I have kept vehicles that have been stored for many years and have absolutely no markings whatsoever. Only the diligent, interested person would be able to produce a code and a number. Whilst a vehicle shape can be related to code, it is the number that is most important for maintaining records. Without a number, the records are lost. So the vehicle lacking code and number is scrapped in a general clean up. Scrap lists show such a vehicle thus:

Code: — (i.e. not known)
Number: —
Remarks: Scrapped on such and such day/month/ year.

So like item (5), a vehicle is scrapped and the people involved in breaking up the wagon do not know what it is or was. Readers may laugh at this but it is important to remember that for many railwaymen it is a job only and there is no other interest beyond holding down that job. Once again Head Office does not know what the wagon was. One case does come to mind. Ballast Plough N 1 was stored at Spotswood Workshops for over 15 years. There were no markings at all, it was just a rust heap. In a clean-up in 1976, N 1 was scrapped about September. Because it was scrapped as a 'nothing' wagon, it is still officially recorded 'On Register'. Another vehicle to be noted 'Not traced Stockdale . . .'.

(7) This last section deals with wagon scrappings and conversion which shouldn't really happen, or are accidental. On the spot expedience sometimes holds sway over the 'authority from afar' (namely Head Office) and all is not as it seems. Written records

Continued on page 53

AMRM NEWS

Wingrove.

This issue we present an article on 'Wingrove', the layout that is known all over Australia. The article was prepared from a paper given by Jack McLean at the Hobsons Bay Convention in 1981. Wingrove may not be everyone's cup of tea but it does represent a side of the hobby that is appreciated and enjoyed by a greater number of railway modellers than expected. Visiting Wingrove is an experience that many enjoy, and have enjoyed for 29 years. Thank you Jack for sharing your joy with AMRM readers.

Magazines and Anniversaries.

Recently Railroad Model Craftsman celebrated 50 years in print, and in the anniversary issue (March 1983) covered in detail the growth of the hobby in America as seen through the eyes of RMC. Students of model railway history will find the articles fascinating, and it is interesting to note the warm mention of their competitor, Al Kalmbach.

RMC along with Model Railroader have made a fine contribution to the hobby in America, and model railways in Australia has benefited as a result. Some of the present AMRM management have been inspired in modelling and magazine work by RMC, especially when Tony Koester was editor.

Next year, Model Railroader celebrates 50 years in print, and by all accounts they have some good articles in store for readers. They plan an Anniversary Conference in Milwaukee in July, but it is a bit to far to go for the weekend. Hopefully we will read of it all in MR. In Australia, we may be able to celebrate a little, at the Prospect Model Railway Club's exhibition, for they plan for another visiting American celebrity. This time Garry Edlen is due to visit and give clinics on model building. Some of Garry's work has appeared in the American model press and if all goes well AMRM will feature an article by Garry in the near future.

When mentioning anniversaries and model railway magazines we must not forget the land where the hobby began — England. Yes, the oldest magazine in print, Model Railway News, comes from the mother country and is available in Australia as Model Railways, the name change occurring in the early 1970s.

AMRM as a 20 year old is a youngster, but we, in Australia, can and do benefit from our English and American cousins. Unfortunately we do not learn from their mistakes, with is unfortunate to one and all.

Club Listing.

The annual Model Railway Club listing will be presented in the December 1983 issue of AMRM. Clubs desiring to be included in the listing should send all relevant details to:-

Model Railway Club Listing
SCR Publications,
P.O. Box 235,
Matraville. 2036.

Details required include club name and address (if applicable), meeting days and times, secretary's name and address, membership availability and club specialty.

All clubs must send in the details by 1.10.83, regardless to any earlier correspondence. This includes clubs who are regularly listed.

Address Changes.

A number of retailers have changed abode in the past few weeks. Included are:-

Broad Gauge Bodies have moved from Marden to P.O. Box 137, Daw Park, 5041. Phone (08) 297 8524.

Branchline has moved around the corner to 490 Dorset Road, Croydon, 3136. Phone (03) 723 1211.

Traintasia, at Mermaid Beach on the Gold Coast have a new telephone number — (075) 55 2103.

Casula Hobbies have changed their postal address from Moorebank to P.O. Box 72, Liverpool, 2170.

Computers and Model Railways.

Computers are becoming part of our everyday life. It is THE growth industry in Australia, especially where micro-computers are concerned. Experts in the industry believe (and no doubt hope) that there will be a computer in every home in the near future. There are some people who shudder at the thought of these new-fangled machines — yet on the other hand there are many who enjoy the challenge of mastering computers. After all they are only machines, and machines do not rule man yet, do they?

It was only a matter of time until railway modellers commenced using computers as a control medium for their model railways, adding interface cards, detection switches, etc, etc. All this may sound very confusing, except for the number of modellers who work/play with micro computers, but it is becoming a real force in the hobby.

The April 1983 issue of Model Railroader features an article on adding a computer to a model railway, the article describing most of the problems encounted in installing a Tandy TRS80. As this computer is available in Australia, and Australians tend to follow American fads this article is of interest.

Don't be misled; adding a computer to a layout involves a lot of work, and no doubt an endless challenge to write and create new programmes. Here the article in Model Railroader can be helpful in at least explaining terminology and describing how to use a computer.

There are a number of layouts in Australia which are controlled by computers. Some are in the early stages of installation. AMRM would like to hear from readers involved in this scene in the hope that they may share their successes and failures with readers. Theory is one thing, but nothing beats practical experience.

Radio Control.

While on the subject of control systems, it was interesting to note that the N-TRAK layout at the Brisbane Model Railways Exhibition was controlled in part by radio control. It this instance the operator walked around the outside of the layout, following the progress of the train. It must be pointed out however that the N TRAK layout was very large (approx. 60/70' x 12') and the operator did not do too many laps around the perimeter.

Radio control of model railway layouts is featured in a two part article, once again in Model Railroader, commencing in the March 1983 issue and concluding with the April issue. It is an extensive article that includes all parts as well as illustrated diagrams and p.c.b. artwork. Those interested in this field of control are recommended to at least read the articles.

Canadian Steam.

Travelling to Canada this summer (winter)? If so do not miss out on the 'Royal Hudson', with he legendary 2860 engine running between North Vancouver and Squamish, British Colombia. The six hour journey is full of history, scenery and mountain greenery, and is to run between May and September this year.

Prototype News or Obituary?

The current economic climate is affecting the Australian Railway systems as much, if not more so, as other industries. Recently the 'Indian Pacific' commenced running again after a lengthy period off the track. The problem can only be put down to running costs, and an attempt to cut them. For the present however the Indian runs on.

If news to hand is correct we will shortly see three more features of Australian railways become a note in the history books. The Southern Aurora, Spirit of Progress and the South Maitland railway at East Greta will all finish.

According to the popular press the Southern Aurora and the Spirit of Progress will finish in early July and be replaced by a single train made up of half Aurora cars and half Spirit cars. The accuracy of this can only be tested by time, but let us hope that the 'club' cars, stewards and all, remain on the new Melbourne express. How else can thirsty, weary railway modellers spend their time between Sydney and Melbourne. Readers may be surprised to learn that many important model railway problems have been solved within the cub car. Unfortunately very few have been able to remember the result the next day.

Time has eventually caught up with the South Maitland Railways and the 'Ten' class 2-8-2 steam engines. Current reports suggest that the SRA of NSW will take over the running of the South Maitland Coal traffic on June 10, 1983. Word had it that the steamers will be stored as well as used at Hexham. Unfortunately the workings at Hexham are not as spectacular as the Caledonia Bank.

There is one good thing about model railways — we can always remember the 'Good old days' with our models, and maybe that is the only way the Indian, Aurora and Spirit will be remembered.

What's in a name?

Australia is a funny place, but no different to many other countries in the world. Each state has its own interpretation and pronunciation of words that differ greatly with the same word elsewhere. This at times can cause some humorous situations and some very sad ones, where individuals take offence when visitors are not immediately aware of the local lore and pronunciations.

This problem also happens within a state, and often within a city. One example of it is the name of the new colour scheme applied by the State Rail Authority of New South Wales. One must assume that it was introduced as a Corporate image, but no specific press release has been made to the point. Some railways workers however are calling the scheme 'Mickey Mouse' colours while many in the modelling fraternity are referring to the 'Candy Stripes'. As to the final and/or correct name, only time will tell.

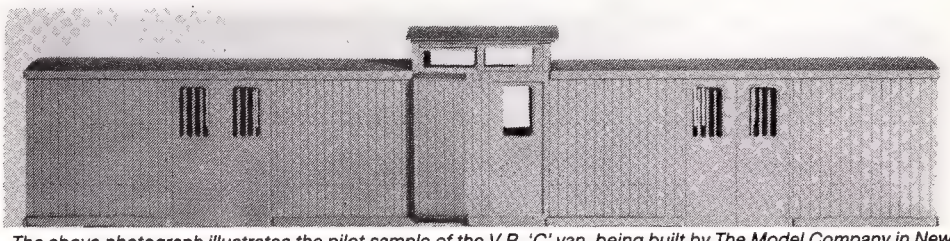
Subscribers.

Next issue will be published at least three weeks early. If you have received a subscription renewal notice in the past four weeks your renewal notice and your payment will have to be received at AMRM office by August 1, 1983.

Convention.

A mini convention is being held at the Australian Model Railway Association, N.S.W. Branch clubrooms at Rockdale on Saturday 30th July 1983. The theme of the mini-convention is 'Modelling Australian' and is aimed at the newcomer to the local scene. Speakers include Phil Kelly, Ray Pilgrim and Ron Cunningham. The programme will commence at 9.30am and finish around 4.45pm. The clubrooms are located in Chapel Lane, Rockdale.

While there is no charge the organisers would appreciate knowledge of expected numbers and accordingly request intending participants to register



The above photograph illustrates the pilot sample of the V.R. 'C' van, being built by The Model Company in New Zealand for McBees Hobby Centre. The etching is so fine it is possible to see the nail holes in the planks.

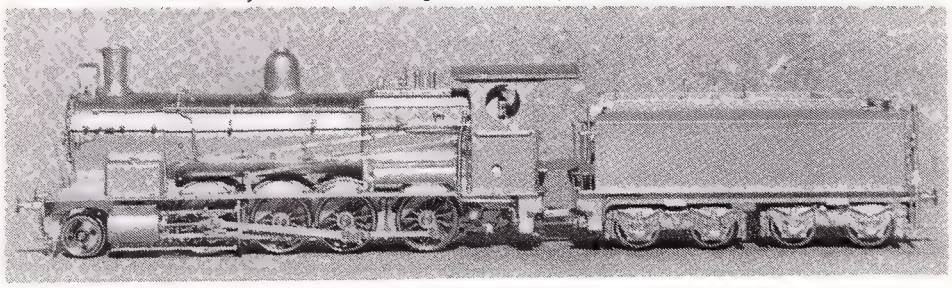


Photo of advance production sample of Mansfield Hobbies HO scale NSWR D50 class by Samhongsa.

with J.McInerney on (02) 747 5894 or B.Norton (02) 7997924 or alternatively write to P.O. Box 194, Rockdale, 2216.

Steam Museum.

Interested in narrow gauge? Then maybe the Illawarra Light Railway Museum is the place for you to visit. The museum, at Tongarra Road, Albion Park, NSW, is open the second Sunday of each month between 11am and 5pm. The museum has many interesting exhibits including a shay, a Newnes shale wagon, coal hoppers and a meat wagon from the North Queensland canefields. The museum is also developing a 2ft passenger railway. The postal address of the museum is P.O. Box 1036, Wollongong.

Rivets in the Firebox?

We've seen some remarkable developments in brass locomotive construction in recent years. Once, when we considered ourselves fortunate if the wheels turned, we now have such a tantalising choice of delectable detail on new models that our heads fair whiz with bewilderment.

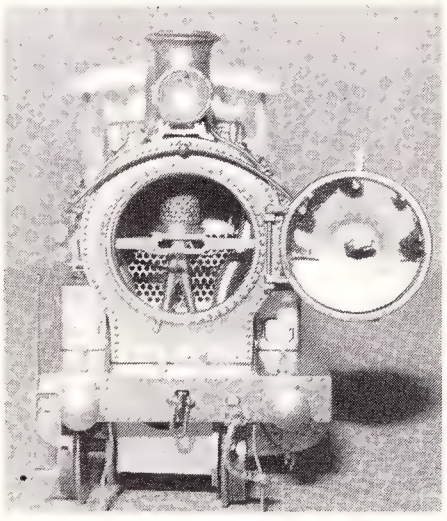
Our imagination no longer has to get overworked to visualise an attentive (Merit) locomotive crew balanced on the buffer beam attending to the blast pipe or the relief of the straining diesel motor as it gets some natural air conditioning from an open hatch. Why, what modeller now would accept any new locomotive that doesn't have a scale 45,000 miles of wear on the driver tyres — not to mention a knocking side rod or two. Or perhaps removable washout plugs, or even rust behind the builders plate.

But one's head spins too fast. It is difficult to tell whether we are dizzy with excitement or dazzled with detail. Have we really got what we wanted? In the cold reality of daylight one could be convinced that after the initial spell of excitement we will probably never open the smokebox door nor will the loco sit in the roundhouse with the doors or lids open for servicing. Are we being overtaken by gimmicry?

When discussing this subject, we should consider why we buy these models. If we buy them as operating models then the smokebox detail, opening doors and hatches could be surplus to our needs and as such unwanted items. However, if we buy them as showcase models, the interior detail and opening hatches can be readily displayed and a real asset. But then, what of the expensive can motors and quality running gear complete with stainless steel tyres which power these models. Are they required?

There is little doubt that many modellers have benefited from the number of highly detailed models built in Korea recently. The standard of the models represents the state of the art in model railways which speaks highly of the manufacturers. However, are the models practical? Can we expect them to be intact of all detail after ten years of constant running? Have we gone too far?

After all, we all pay for the detail, motors and running gear whether we use it or not.



Some of the superb detail inside the Mansfield Hobbies D50 class.

COMMERCIAL NEWS

Arrivals.

The Belpaire version of the C36 arrived at Berg's Hobbies in May along with the first shipment of the 600/700 railcars from New Zealand. Further deliveries of the railcars are expected soon.

Camco's latest offering, a NSWR 'G' wagon kit should be on sale as this issue arrives in the shops.

ABL Models have released a number of passenger car and van detailing components including battery boxes and electrical distribution panels.

Intoy Projects have released a catalogue for Matchbox vehicles. The booklet is available from toy and hobbyshops and newsagents.

Broad Gauge Bodies have released two decal packs for NSW Private Owner four wheel coal hoppers. The packs appear to be based on vehicles from the Newcastle area.

Fybren Models advise that Cooper Craft have released their latest kit, a 7'6½" high wooden mink van.

Rail Tees have extended their range of 'T' shirts. Locomotives featured now include ANR 830 class, Vicrail C class, SAR 520 class, Westrail K class and NSW 48 class.

From New Zealand two kits which resemble Australian locomotives have been released. Firstly Trainsville of Taupo have released a Tasmanian 'DS' class in Sn3½ scale. The TGR 'DS' class was purchased from the NZR in 1939 and ran until 1958. The kit is a model of the NZR 'WF', the 'WF' being the loco purchased by the TGR.

The other kit was released by Railmaster and is a model of the NZR 'Di' class, English Electric built diesel electric. The Sn3½ scale kit shows a resemblance to the Q.R. 1270 and 1300 classes and the WAGR 'K' and 'R' classes. The kit runs on a specially modified Athearn chassis, also available from Railmaster. It must be pointed out that the NZR 'Di' class was shorter in length than the Australian locos listed.

Railmaster have advised that they are working on a NZR 'Dc' class, the prototype of which was modified by Clyde Engineering in Adelaide. It is also interesting to note that Railmaster still have stocks of the 'Dg' class diesel kit, the prototype of which is destined for the scrappers' torch in the immediate future.

Casula Hobbies advise that the Rails North Models 'HUB' set kits have arrived and are available in small quantaties. A revamped 43 class body shell, modified to fit the Mansfield 43 class mechanism is due for release by Main West Models very shortly.

The Mini Models 'CHS' coal hopper arrived in limited supplies in some hobby shops in late April.

As these notes were being prepared the Mansfield Hobbies 'D50' class locomotive arrived while the Broad Gauge Models VR 'A²' was due.

Railmac Publications have released their 1983 Catalogue, which lists their extensive range of booklets.

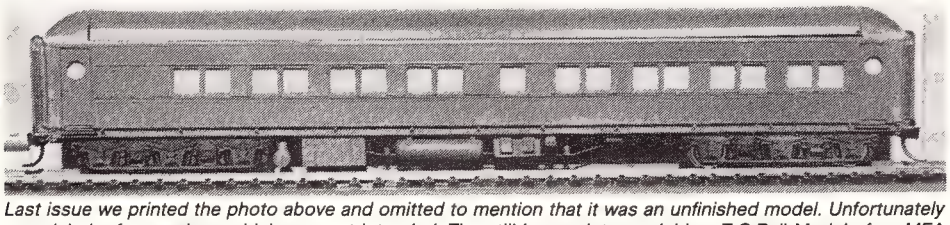
Marklin Distributors have imported a quantity of the Marklin four wheel insulated van, decorated with a 'Fosters Lager' sign on the sides. It is available with both Marklin and insulated wheels.

A newcomer on the scene is Tuft, who have released an extensive range of scenicing materials. The use of these is via the Zip Texturing process.

Another newcomer is Christine Hicks, who is producing a range of HO scale road signs. The first is a 60 (kmh) and 80 (kmh) speed signs, but following is crossing, junctions and crossroad signs. They are also interested in producing imperial road signs . . . does anyone have any accurate information? Write to AMRM if you can help and we will pass on the information.

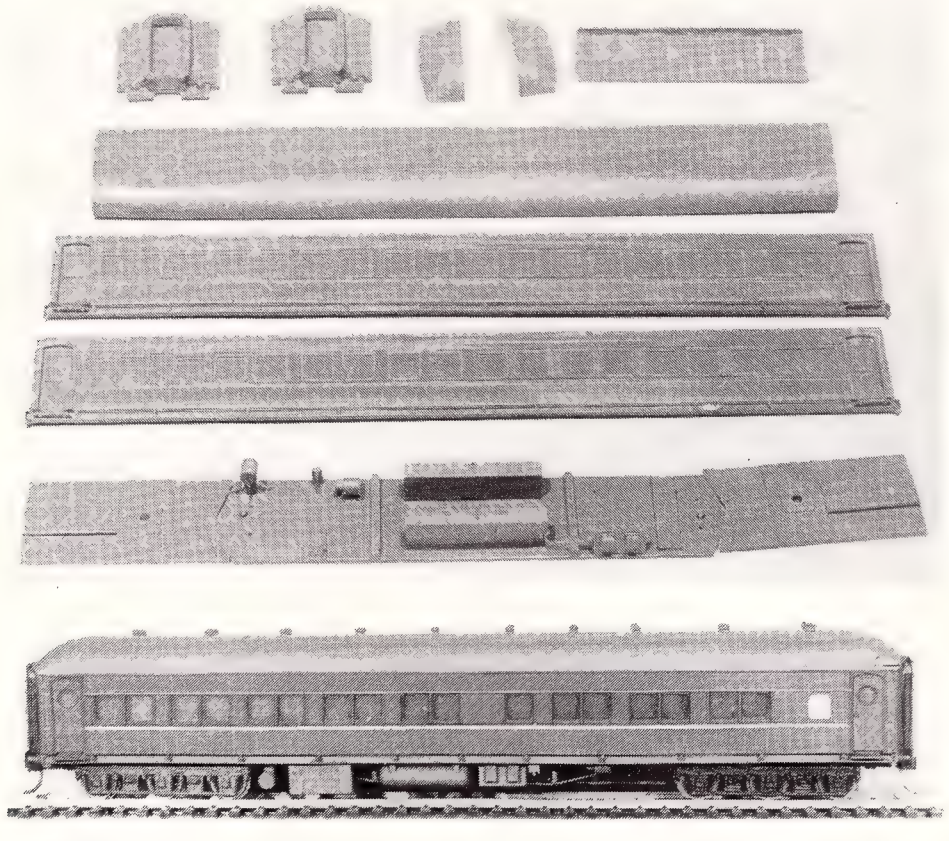
TC Rail Models, due to demand, have delayed the ceasing of production of their range of kits by releasing a few more. The 'MHO' and 'VHO' vans, from the Workshop Five range, are now available as is, the 'NCR' set (Sets 77 and 78), as used on the Goulburn Day train. They are being sold as a set, with a selection of either set 77 or set 78. Two of the cars, the 'HFV' and 'BV' can be adapted to the 'IFV' vehicles. Subsequently these cars will be sold separately, the alterations being detailed in the instructions.

Continued on page 56



Last issue we printed the photo above and omitted to mention that it was an unfinished model. Unfortunately we misled a few readers, which was not intended. The still incomplete model is a T.C.Rail Model of an MFA supplementary interurban car.

Due to demand T.C.Rail Models have delayed the end of production and in doing so have re-released the Workshop Five 'MHO' van and a new kit of the 'BV' lounge car, as used on the 'NCR' set. The individual pieces of the kit can be seen below. Note how the floor is in three sections and that the roof is an epoxy casting.



Another model of the T.C.Rail Model range. A complete but unlettered MBA Supplementary interurban car.

TUFT Landscape Materials. Samples supplied by TUFT Pty Ltd, Canberra City. Price in text.

Zip-Texturing is a scenery method devised some 20 odd years ago in America by the late Linn Westcott. It basically involves a system of 'dusting' pre-coloured plaster over a pre-wetted scenic formation (rocks, hills etc.). The moisture causes the plaster to set with a coarse and effective result.

Exponents of the method will no doubt agree that the hardest thing is to obtain the correct formula of plaster/dry powder colours. It is not simply a matter of, say, adding a spoonful of green colouring to a cup of plaster, but more than likely needs some yellow and brown as well. Getting the right colour can be a real pain in the neck and many modellers closely guard their formulae.

TUFT has now solved the problem with their quite extensive range of scenic colours all in see-through plastic bags. The range covers grasses in various seasonal colours, dirt and earth colours, plus colours for man-made situations (roads, concrete, tarmac etc.). These basic colours are further enhanced by possibly seven or eight different hues to that colour.

Each clear plastic packet contains a yellow card top denoting the colour and reference number and also includes, on the back, the method for fixing the material. All that is needed is an atomiser bottle (available at most nurseries for around $2) and a fine hand-held strainer (one of those small tea-type strainers that sit on a cup is ideal). Each packet holds 200gm nett and should texture 1 square metre of scenery. The price varies with the colour, from $1.95 to $2.50.

The materials were tried and found to work superbly. By dusting, say, a Spring Green followed at random by two or three other hues, the modeller avoids repetition in colour.

Whilst it can be said that Zip-Texturing will never replace the traditional dyed sawdust method, it does present a method that, artistically used, will result in an eye-pleasing amalgamation of both materials and methods. The TUFT Landscape Materials is currently being introduced to hobby shops and is well worth trying.

Allan Brown.

NSW 421 Class Diesel Electric Locomotive kit in HO scale, by Main West Models, Sample from Casula Hobbies, Phoenix Plaza, Macquarie Street, Liverpool, NSW, 2170. Price: $38.50.

During the period 1965-66, the NSWGR ordered and received 10 Clyde built diesel electric locomotives as an adjunct to the highly successful six 42 class earlier made by that company. The 421 class differed primarily from the 42 class in that they contained a full width flat-fronted cab at the B end, whilst retaining the familiar EMD F-style nose and cab at the A end. They were the forerunners of what was to become a basic cab design for future locos on the NSW system. All units are still in service and operate largely on the main southern line.

The kit comes supplied in a poly bag with a familiar green card top. It comprises epoxy castings for a one piece body shell, front and rear pilots, fuel tank, chassis, bogie mounting plates, motor mounting plate, bogie side frames, air reservoirs and buffing plates. It is designed to use the motor bogies and drive shafts etc. of the Mehanotehnika/Life Like Alco Century 628 model. I cannot see any real problems in fitting the Athearn SD9 or the Atlas mechanisms if the modeller so chooses. An explicit set of instructions (including diagrams) is included.

It cannot be denied that the one piece body shell looks like the 421. All detailing is cast on and is well executed. The windows have an epoxy insert and take a little bit of drilling and filing to remove. Sides are of uniform thickness and the bottom edge of the body is flat all round. General dimensions of the model would appear to be within acceptable limits; in fact the only discrepancy is in the length which is a mere 6" too long — negligible. All necessary transfers are commercially available. The July/August 1978 (Issue 91) of AMRM should give further detailing reference.

The 421 is a model that cannot easily be scratchbuilt and in this regard the Main West kit will fill that gap for modellers of main line diesel units.

Allan Brown.

'Buses of the Garden State' by Bruce Tilley published by Railmac Publications. Price: $6.90

This 64 page soft cover book 230mm x 185mm, contains 123 photos, very clear, ¾ view half page, no distracting background, of buses, all single deck bar one, run by private companies in Victoria. Whilst representing Victorian companies, the buses have been sold to, or bought from, bus companies in other States. Buses featured date from 1943-1982 and are mainly of Australian bodies on imported chassis. A very interesting and informative book written by an enthusiast.

With the trend towards Australian prototype layouts, here is a book that will give the modeller a correct outlook on road vehicles to service his stations.

Max Burke.

Research reports Numbers 1, 2, 4, 6 and 7. Review copies obtained from the publisher, Mountview Publications, P.O. Box 87, The Basin, Victoria, 3154. Price $2.50 per report posted.

These reports cover Victorian Railways passenger cars. The cars covered so far are:

'E' Series AE/BE/BCE/ABE	— Report No.1
'E' Series Sleeping, parlor, dining, CE	— Report No.2
'S' Cars AS/BS/ABS/CS/DS	— Report No.4
'W' Cars AW/BW/ABW/CW	— Report No.6
'PL' Cars APL/BPL/BCPL	— Report No.7

Reports numbered 1, 2, 6 and 7 contain identification diagrams. These are not scale drawings as the scale varies from one end of the car to the other, from 3.1mm to 1 foot, to 3.2mm to 1 foot. The diagrams are based on the VR ⅛th inch diagrams.

The text covers background to the reason for the cars, construction dates, dimensions, lettering and paint schemes and any conversions or scrappings. The basis for this text is a series of articles which appeared in the ARHS Bulletin in the mid 1950s. Credit for all sources is given in reference section. (IBID means 'the same reference'.)

Reports 4, 6 and 7 contain individual car histories in summary form after the main text.

There is doubt as to the accuracy of some of the text and the amount of information drops sharply after the early 1960s. Both of these points are covered by a disclaimer on the first page of each report.

These reports should be of value to anyone who does not have access to back issues of the Bulletin or who wishes to identify cars photographed in passenger consists.

Modellers should be able to use them as a starting point for construction plans, provided that they are supplemented by plenty of photographs and 'on the spot' measurements.

Worth the price as a reference for further research.

Phil Jeffery.

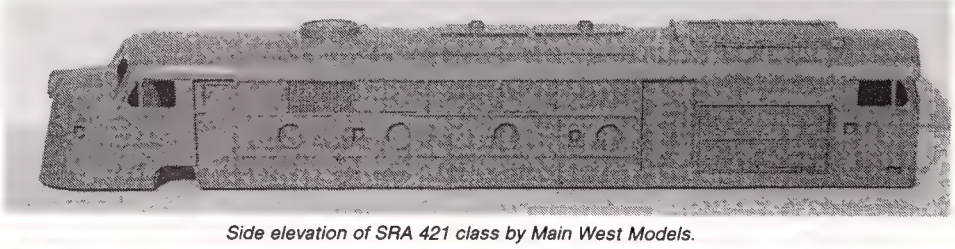
Building an HO Model Railroad With Personality by John Olson. Published by Kalmbach Books. Price: $US6.50.

In the June 1982 issue of AMRM, AMRM NEWS made mention of a fine series of articles by John Olson commencing in the February 1982 issue of Model Railroader. The series was based on the construction of a small layout. Well, Kalmbach Books have now published John's articles on the Jerome and Southwestern in book form, which allows modellers to read the full series between one cover.

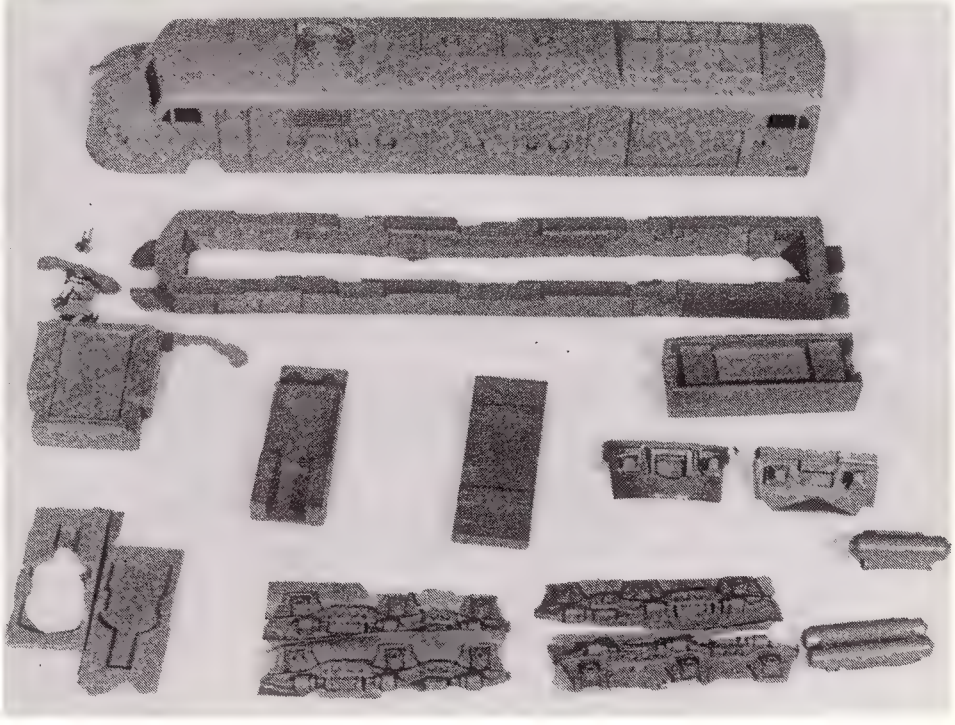
The 68 page, soft cover book, repeats the articles in what appears to be a word for word, photo for photo, re-printing effort. This however may disuade a few regular readers of Model Railroader to ignore the book and refer to their own copies. It is early days yet, but on its own merit, this book has the scope to become the 'bible' for building layouts.

The book is based on a 4' x 8' layout that was specially built for the articles, and hence the book. To this end photographs of the completed layout accompany the early chapters, which is inspiring. The book, in ten chapters, covers the concept of the railroad, the design and building of the frame and roadbed, and then details the track laying, ballasting, electrics, scenery and finally the structures.

Throughout, John used components that are readily available in the USA. Atlas flexible and set track, Masonite, Hydrocal, etc., etc. Some of these components are not available in Australia, but replacement materials, or the same materials under a different name can be found. Most, if not all the structures mentioned in the final stages, are available in local shops, although some shopping around will be necessary.

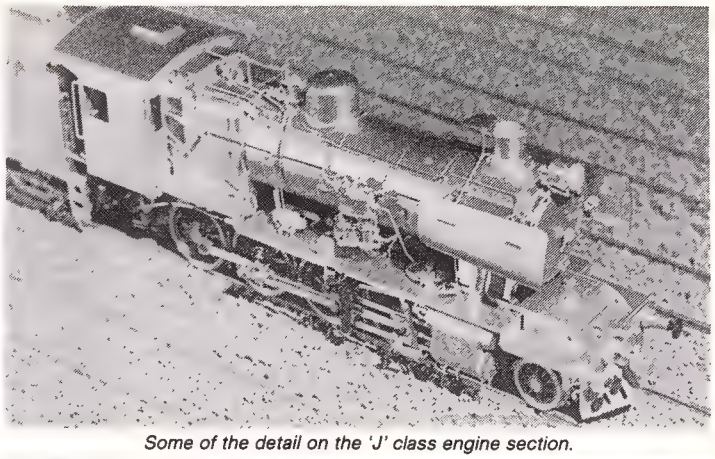


Side elevation of SRA 421 class by Main West Models.

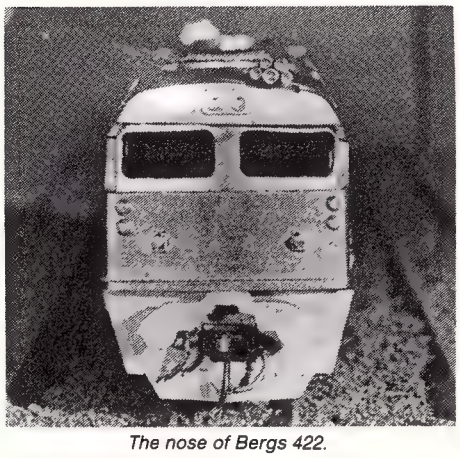


SRA of NSW 421 class diesel kit in HO scale by Main West Models.

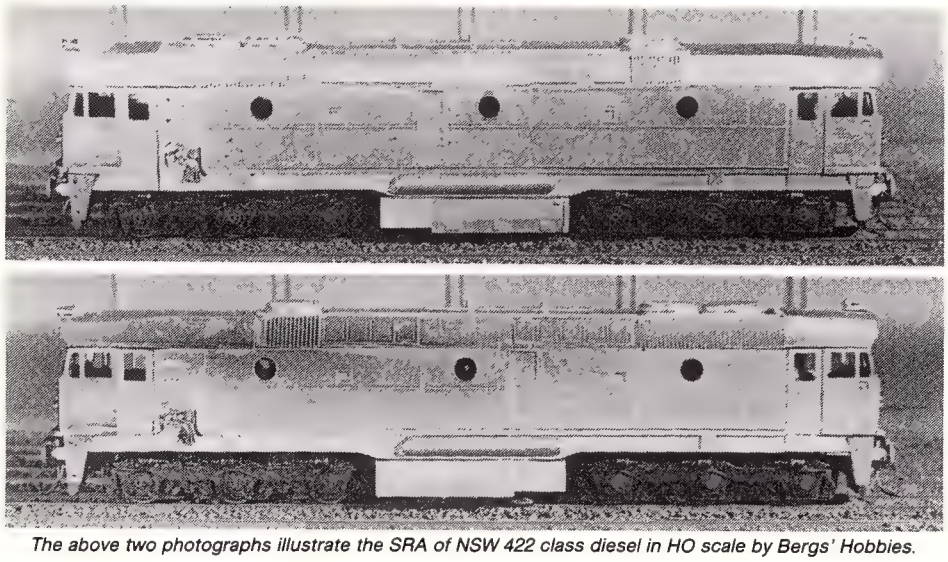
Roof detail on Bergs 422 diesel loco kit.



Some of the detail on the 'J' class engine section.



The nose of Bergs 422.



The above two photographs illustrate the SRA of NSW 422 class diesel in HO scale by Bergs' Hobbies.

At first glance this book may appear to be designed for the newcomer, but this is not so. John Olson has a lot of talent, and this is displayed in the layout. Some of his methods are new, and some old, but we can all learn from his working style. The book would be an ideal gift to anyone interested in the hobby, especially someone showing interest in model railways.

The book is in itself complete, and does not require reference to other publications for clarification. There are however, at present, two problems with the book. Firstly it is not yet available in Australia and secondly, not all of us will be able to finish a layout to the same standard that John Olson does . . . but we can sure have fun trying.

Bob Gallagher.

NSWSRA '422' Class Locomotive Kit, HO scale. Available from by Bergs Hobbies, 261 George Street, Parramatta. Price: $60.00

The 422 class were commissioned between January 1969 and January 1970 and 20 members make up the class. All locomotives are still in service and have not received extensive modification during their service, with the exception of 42220 which was rebuilt as a test locomotive for the equipment which is now being used in the manufacture of the 81 class locomotives.

The kit is supplied as a set of whitemetal castings, which are clean and free of flash, other than the casting feeds. The maker also supplies a set of good quality brassware castings for detail parts, i.e. horns, staff exchangers and air and multiple unit hoses. A set of fine mesh covers is provided for the fans and wire is provided for the handrails. A set of instructions is supplied, the quality of which shows a marked improvement over previous kits from this maker. The completed body is designed to fit the Athearn SD-9 mechanism.

The kit was assembled and, during the assembly process, the following problems were encountered:

1. The washing of the parts in soapy water, as suggested in the instructions, does not remove the release agent and it was found better to use a substance such as powdered 'Ajax' to clean the castings. Following this, it is recommended that each joint be filed clean before attempting to glue the parts, otherwise adhesion will not take place.
2. It is suggested that the sides be made in one piece in future kits of this type as difficulty was experienced in making up a 'box' type assembly with the cab sides being made as separate parts. The assembly was not rigid until the roof sections were fitted, even with epoxy fillers over the joints in the box.
3. The kit is too wide by one scale foot. Other dimensions are within accepted tolerances. Some of the 'bulky' look of the kit may be improved by narrowing the width of the cab front casting as suggested in the instructions and the roof section will need to be bent, in using the method shown in diagram 5 in the instructions.
4. It is advisable to fit a $\frac{1}{16}$" brass plate in place of the cast chassis mounting pads supplied. Brass plate can be drilled and tapped to receive the securing screws, whereas difficulty has been encountered with glued nuts working loose. Small brass pads were also glued in place on top of the coupler mounting pads to enable a screw thread to be cut in position and eliminate the thread stripping, as it is prone to do in whitemetal.
5. The fan housing castings on the roof are too high and need to be filed down before fitting the fans and screws in place.
6. Because of the design of the kit to fit the Athearn chassis, the frame members are too close to the edge of the body and this results in the air tanks and the staff exchangers protruding from the sides of the body.
7. The steps on the left hand cabside on the end with the single roof fan should be filled in before painting as they do not exist on the prototype.

The points made above are put forward to assist modellers in the construction of the kit and as constructive criticism that the manufacturer may find useful when preparing future kits.

In conclusion, the kit, made up, provides a useful addition to a modern image loco fleet. It is a heavy body on a powerful chassis and gets top marks in the performance test. The quality of the castings is good and the detail castings (horn, staff exchangers and hoses) are a credit to the manufacturer.

John McKenzie.

ANR GM1 Class Diesel Body Kit in N scale by Welco Models, Box 283, Reservoir, Victoria, 3073. Price: $14.50.

The GM1 class of the CR/ANR/AN was introduced in 1951 and the members of the class were the first mainline diesel locos built in Australia. The power plant was the same as that used in EMD's F2 to F7 models. Since their introduction, the GM1 class has operated over all of the AN standard gauge system, into NSW and Victoria. These locomotives have performed the full range of duties from shunting right through to hauling the Indian Pacific.

Welco's whitemetal kit comes in a sturdy cardboard box with an instruction sheet that covers the construction of the kit as well as the alterations that must be carried out to the Mehanotehnika SD45 chassis so that the body will fit. The kit comprises the nose/cab, two sides, roof rear wall and pilot. Most of the parts were free from flash, although the cab windows required some attention with a small file.

Detail on the kit is reasonable although it is a bit coarse around the cab/nose and rear sections. Since receiving this kit I have looked at Welco's models of other locos and the detail on these is better so perhaps they have improved their pattern making.

Although the assembly of the kit appears to be straightforward, I had some difficulty with it and I had to fill several joints with epoxy. Care must be taken to ensure that each joint is as neat as possible. To make matters worse, the curve on the cab roof of my kit was different to the curve on the main roof. The end result, however, was a loco that looks the part and represents good value for money.

Stuart Livesey.

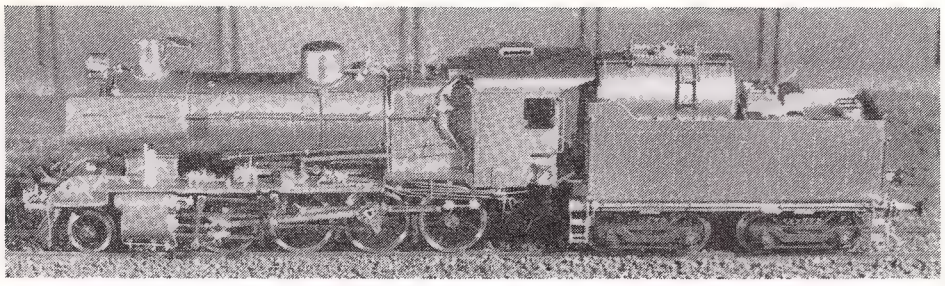
V.R. 'J' class 2-8-0 locomotive in HO scale by Dong Jin of Korea. Imported by Australian Locomotive Company, PO Box 173, Boronia, 3155. Price: $415.00.

The 'J' was one of the last classes of steam locomotives put into service on an Australian railway system. Introduced in 1954, there were 60 in the class, being built in the UK by Vulcan Foundry. The class was constructed so that they could be easily converted to standard gauge. Regretfully this did not eventuate.

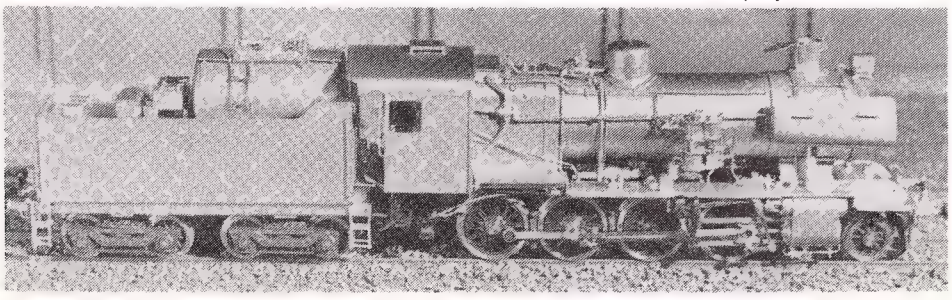
The first thirty locos were built as coal burners and the remaining thirty equipped as oil burners. The class was used extensively on branch and light lines. Towards the end of their brief career they were used on bulk wheat trains and as yard pilots. They were numbered 500-529 (coal) and 530-559 (oil).

The model is based on an oil burning version of the 'J' class, but was available with a choice of coal or oil tender. The model was supplied in a stout card box lined with red foam. A certificate of ownership, a sheet of servicing instructions, a crank pin spanner, spare screws and a sheet of chemical etched numbers accompany the model.

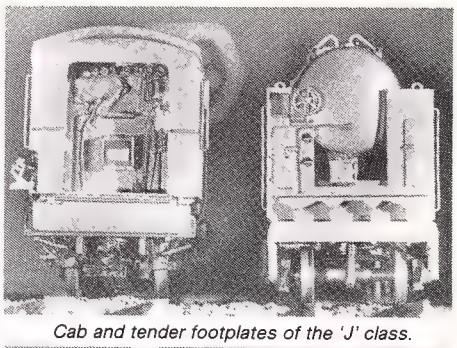
The model has been produced by the fabrication



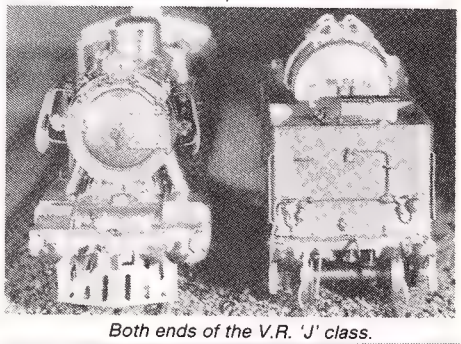
Drivers side of V.R. 'J' class by Australian Locomotive Company.



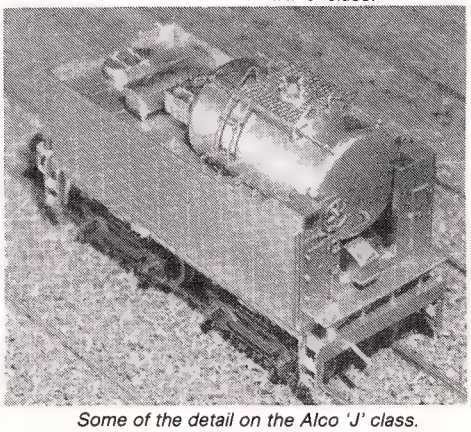
Firemans side of V.R. 'J' class by Australian Locomotive Company.



Cab and tender footplates of the 'J' class.



Both ends of the V.R. 'J' class.



Some of the detail on the Alco 'J' class.

of brass pressings, etchings, stampings and castings. It has been finished with a coat of lacquer, except for the underframe and wheels which have been chemically blackened, a move which eliminates the need to fully disassemble the model for painting. There are nine screws holding the body and chassis together, the servicing instructions being of assistance in the task.

A 16mm Mashima can motor, completely hidden from view drives the rear axle via a gear train and an enclosed gearbox. The drive rods and valve gear are fluted and articulated as per the prototype. All wheels are the RP25 profile and have the correct back to back wheel dimension.The wheels are spoked and have the correct wheel balances on them.

The body has been fabricated and detailed to the general high standard that is expected by Australian modellers. All joints are clean and there appear to be no assembly error or misallignment. Detail items, are to a very high standard and include air compressor, generator, hinged chimney cap and support, brake shoes, marker lamps, miscellaneous pipework, staff exchanger and sprung buffers. The buffers deserve special mention for they are fixed so that while they spring they do not rotate. Accordingly the cutouts in the buffer head remain in the correct position.

Another detail feature is the chimney cap, which hinges shut. A fixed front coupler, complete with unlocking levers and a fabricated pilot along with the fully detailed backplate complete with valve handles make up the model.

The tender displays a high standard of photo etching, for the foot walk around the oil filler has been completely etched through. Brake wheel, oil valve cock handle, tool boxes, water hatch and full brake gear is also included. The rear of the tender has been fitted with a coupler pocket for Kadee No.5 couplers, three screws being provided for securing the coupler. All screws can be used without fear of breaking the coupler pocket off the tender. Correct profile bogie sideframes, fully equalised are fitted.

The loco and tender are joined together with the alligator style draw bar which has three positions for running. The loco is fitted with a hinged footplate which is insulated so that is does not short out when in use. Unfortunately the tender and loco footplates are not on the same plane, so the hinged footplate sits upwards.

Despite the detail and fineness of craftsmanship the model does not fully capture the 'spindly' appearance of the 'J' class. A feature of a V.R. 'J' class is its long slim high set boiler which has stacks of air between it and the footplate. The 5mm of space between the footplate and boiler on the model is not sufficient to capture this feature. An oversized boiler and a slightly high footplate help cause this problem. It is also disappointing to note that the well made staff exchanger, as fitted in the closed position, protrudes 3mm outside the cab side.

On the track the model proved to have a very fine mechanism, moving very freely and responding to the controller. It tracks freely in both forward and reverse directions without any sign of derailment and easily negotiates No.4 points and 450mm radius curves. It has a top speed of 101 kph (63 mph) and a crawling speed of 1.5 kph (0.96 mph). It has a drawbar pull of 56 grams, which in real terms can haul 12 Lima twelve wheelers on the flat and start on a 1 in 30 grade with 9 Lima cars. The cars have been fitted with the Camco 25mm axled wheels.

The etched numbers supplied with the model are on a single sheet, and must be cut out for use. The sheet includes a selection of 12 different class numbers and these include the correct profile numbers for the tender, cab side and the front buffer beam, the latter of which is the character 'J' in a box and a separate number. Without doubt these would enhance the model.

Despite the deficiencies in some areas this is a fine model that runs superbly and lacks any obvious errors in assembly. It will no doubt be a fine addition and a good worker on any layout. A word of warning however. The foam that this model is packed in has proved in the past to be disastrous on painted models. Over a period of time the dye comes out of the foam and onto the model. It penetrates the lacquer on the raw model and most other paints. If the model is left in the foam, ensure that it is adequately wrapped in plastic that does not allow any portion of the model to touch the red foam.

Bob Gallagher.

Hornby 'OO' scale British Railways Class 86/2 Bo-Bo electric locomotive.

An advance sample has been received of Hornby's Class 86/2 electric loco in an updated format as 86-243 and named "The Boys' Brigade". The prototype loco was given this name on 9 April 1983 to commemorate the centenary of this organisation.

The Hornby model has covered headcode boxes in accordance with present practice and possesses die-cast cab interiors for extra weight. The model shows the attention to detail we expect from Hornby with fine rivet detail, highly detailed bogie sideframes and plenty of roof mounted equipment.

The usual Hornby Ringfield motor bogie is fitted at one end and power can be obtained either from the track or overhead via a switch on the roof of the loco. The British Railways blue and yellow paint scheme has been faithfully reproduced and The Boys' Brigade crest nicely printed on each side of the model above the nameplate. The model is quite powerful having a drawbar pull of 75 grams.

Whilst this model is a re-paint of a loco in the existing Hornby range, it does provide modellers with an additional loco for a modern mainline British layout. The existing Class 86/2 model 'Phoenix' will continue to be available.

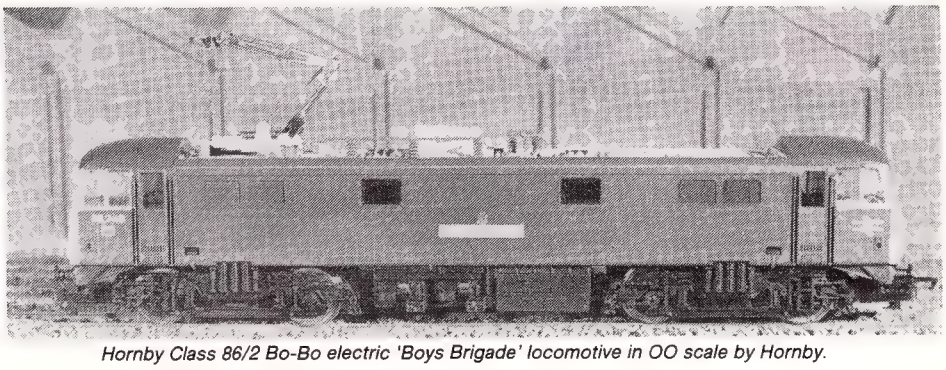
It is not known when this model will be available in this country and the price will presumably be the same as that applying to model R360 at the time.

Graham Ahern

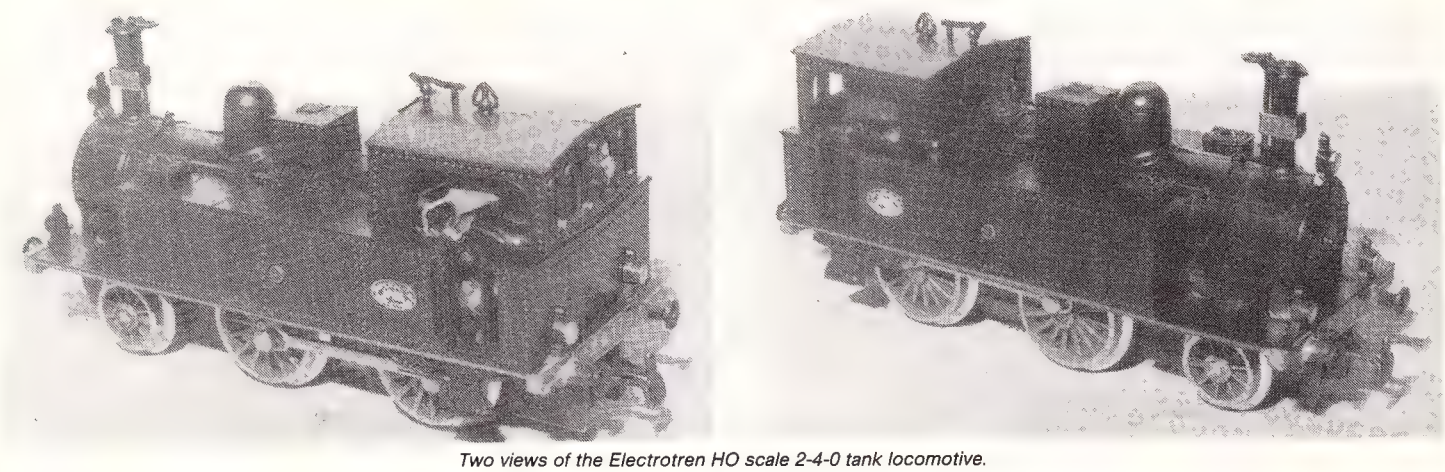
Sharp Stewart 2-4-0 tank locomotive in HO scale by Electrotren. Available from Locomotion, 14 Jennifer Crescent, Thirroul. 2515. Price: $43.10.

This model is based on the 2-4-0 tank locomotive built by Sharp Stewart & Co. (U.K.) in 1878 for the Tarrago-Na-Barcelona-France. In 1901 the company was taken over by M.Z.A. (Madrid-Zaragoza-Alicante). Rated at 464hp the loco was used at the time for hauling express trains. A prototype photo in the Electrotren Catalogue indicates that it carried the numbers 120-0202 on the tank sides.

This model is of interest to Australian modellers due to its similarity to the N.S.W.R 'F351' class and South Australian 'P' class. Both classes were built by Beyer Peacock and Australian manufacturers. The 'P' class was introduced to service in 1884, there being six in the class. The locomotive was so successful that a further 14 were ordered from James Martin of Gawler and were in service by December 1893. The F351 class commenced ser-



Hornby Class 86/2 Bo-Bo electric 'Boys Brigade' locomotive in OO scale by Hornby.



Two views of the Electrotren HO scale 2-4-0 tank locomotive.

vice in 1887, there being 12 in the class. A further six were built by Henry Vale of Sydney.

Initially both classes had a close resemblance to each other and co-incidently to the Sharp Stewart built loco. The 'P' class had 5' drivers, while the 'F351' class had 5'1" drivers. Tanks, fittings and layout were very similar except for the bell on the cab roof of the 'P' and the tank/boiler bracing, again on the 'P'. Over the years, rebuilding has changed the appearance of the 'F351' class which was renumbered in the 'X10 class' grouping in 1924.

The Electrotren model is supplied in a plastic box which protects the model. The one piece plastic body is fitted to a metal chassis. Power is delivered by a ring field motor to the two driving axles via a gear train. The driving rods are fluted and fitted so that they can never bind against the power drive. A solid lead weight is fixed into the chassis.

The driving wheels are 4'10½"dia. and the drivers are 27mm apart. The front wheel had a diameter of 11.3mm and the total wheelbase is 51mm. The front axle has 2mm of free vertical movement. Tyres are nickle plated and have a width of 2mm, flange depth of 1.6mm and wheel back-to-back of 14.4mm. The wheels are spoked and the drivers are fitted with wheel balances. Bronze pickups are fitted under the chassis onto both drivers. A simple hook coupler is fitted to both ends.

The body is plastic and has been moulded with all detail in place. The mould separation line is clearly visible down the centre of the loco. Detail items include rivets, springs, bell, whistle and actuating lever, pipe work, water injectors, builders plate, headlights and marker lamps. The loco is 27'5" over buffers, 9'8" wide over side tanks and sits 13'8" above rail height (to the top of chimney).

Other dimensions for kitbashers are:- boiler 17.8mm, side tanks 65mm long over-all, dome 8.7mm high, chimney 15.2mm high, boiler centre line is 24.5mm above rail, cab roof is 42mm above rail height and buffer centre is 12.5mm above rail height.

On the track the mechanism is noisy and the loco was very unstable at top speed and constantly derailed. The model, however was found to be stable at a speed of 170kph (106mph) and it had a crawling speed of 6.6kph (4mph). It had a drawbar pull of 45 grams.

The model reviewed was black highlighted with red on the wheels, buffer beams and lining along the running board. A green model is also available. In Spain, where Electrotren is manufactured there is also an AC version which is fitted with a track centre pickup shoe. The Electrotren catalogue shows an illustration of an exploded view of the locomotive, although it did differ a shade from the model reviewed.

As supplied the model has a few features that differ from the Australian look-alikes. It has a closer resemblance to the SAR 'P' than the NSWR 'F351', it lacking the coal bunker on the 'F351'. Modellers choosing to utilise the model as a 'P' would look at replacing the dome and removing the sandbox off the top of the boiler.

In summary, it is a very nice model, although noisy in operation. The deep flange wheels limit it to use of code 100 track, but the wheel flanges could be made finer. It has a very high pulling power, especially for its size, and should be a good worker on a layout.

Bob Gallagher.

NSWGR 20 class 2-6-2 tank locomotive in HO scale by Samhongsa of Korea. Imported by Trax Model Products, PO Box 312, Ryde. 2112. Price: $295.00.

In 1891 twelve tank engines were delivered by Beyer Peacock & Company for coal traffic in Newcastle. The design closely followed the design of the A(93) class except that the leading coupled axle was 10" closer to the centre driving axle. These were given the E(10) classification. In 1902 six of the A(93) 0-6-0 tender engines were converted to tank engines and were given the A/E classification, the modified locomotives retaining the original number.

In appearance these locomotives resembled the E(10) class except that they retained their original wheel spacing and a slightly raised running board under the coal bunker. Between 1909 and 1911 a further 15 locomotives were modified to tank engines and in 1924 they were all grouped with the E(10) class to make up a 33 strong Z20 class.

Initially the class was used for hauling minerals, namely coal, but as they were superseded by more powerful locomotives they were used for shunting and suburban passenger working. Noted work areas were Port Kembla wharves and special passenger working in country areas including the Camden Tram, a short steep line between Camden and Campbelltown. A large number were sold to private industry. A Z20 class is preserved, at the moment, at the Thirlmere museum.

The model is based on the A/E conversion from the Z19 class. The model is fabricated from brass using the etching, milling, stamping and lost wax casting processes to produce the parts. All have been joined together with solder and given a coat of lacquer.

The drivers have the correct number of spokes and have stainless steel tyres which have the RP25 profile. Front pony truck is fitted with disk wheels while the rear truck is fitted with spoked wheels. The back-to-back measurement on all wheels were under the NMRA standard. A Furuichi 16mm can motor drives the centre axle via an enclosed gearbox. All drivers are sprung and the wheels are connected with a set of very fine drive rods.

Electrical pickup is off the leading and trailing drivers and the trailing truck. The pickup method on the drivers consist of a sprung pin which protrudes through the frame onto the rear of the wheel flange. On the review sample, the spring of one pin did not operate after half an hours running. The front pony truck is lightly sprung with a fine wire.

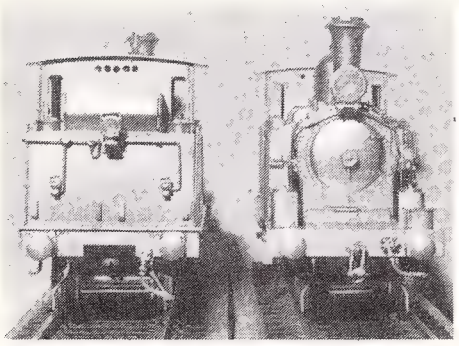
The body is removed from the chassis by three screws. The rear coupler pocket is the correct height and size for a Kadee No.5 and a single screw into a blind hole has been provided for securing the coupler. Care will have to be exercised when fitting the coupler so as not to damage the model by turning the screw too far into the hole. Further care will also have to be exercised when operating the model for the combination of the sprung buffers and Kadee No.5 couplers can generate buffer lock on tight curves.

The body has been fabricated from formed etchings and is a one piece section that fully covers the motor. It is fitted with a boiler back plate and the shortened bunker that was fitted to most Z20 class locos. General craftsmanship is first rate, the only questionable area in assembly is the footplate which is not completely straight. The model is weighted with lead in the side tanks and in the front section of the boiler.

Detail standard is superb! The model is fitted with what is now expected of an imported hand crafted model which includes sprung buffers, side steps, head and tail lights, marker lamps, water balance lines (under steps), clack valves and piping, water hatches (including hinges), air lines, compressor, generator and fully detailed backplate. Fittings under the footplate include air tanks, sand boxes and pipes and full brake gear including cylinders, leverage and shoes.

All detail has been secured tightly in place. The fitment of the boiler backplate however, leaves something to be desired for there is a noticeable gap between the back plate and the curved corners of the firebox. The model is a good representation of the prototype, there being only a few noticeable inaccuracies, these being the height and diameter of the dome along with the hight and shape of the funnel. The front buffer beam is fitted with a sprung screwed coupler which is prototypically correct. A tank engine is expected to freely operate in either direction. With a Kadee coupler at one end and a

Both side of the N.S.W.R. Z20 (A/E) class tank locomotive by Trax Model Company in HO scale.



Both ends of the Z20 by Trax Model Company.

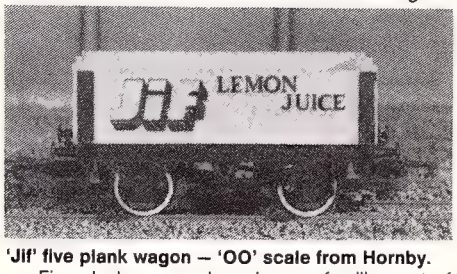
screwed coupler at the other, the operational capacity of the loco as a model is not as wide as the prototype. Perhaps manufacturers might consider this on future models.

On the track the model proved to have a smooth free mechanism after the rail guards had been adjusted slightly and the pickup had been repaired. Regardless of the in-gauge wheels, the model freely negotiated Peco and Shinohara (code 100) track and pointwork, including No.4 points. The model proved to be a 'standard checker', for the brakegear under the chassis is only a shade higher than the recommended Kadee 'between the track' uncoupler height. If the uncoupler is too high the model will not pass over it.

The model has a top speed of 129kph (81mph) and a crawling speed of 3.13kph (1.95mph). For its size the model proved to be powerful having a drawbar pull of 42 grams. In real terms, the loco effortlessly hauled 6 Lima 12 wheelers (fitted with Casula wheels) up a 1 in 30 grade.

Apart from the funnel the model is a good representation of the prototype and has excellent running capabilities after the pickup problem had been overcome. The model is presented in a stout card, grey foam lined box accompanied by a pack of spare screws and a crank pin spanner.

Bob Gallagher.



'Jif' five plank wagon — 'OO' scale from Hornby.

Five plank wagons have been a familiar part of the British railway scene for a great many years. The 'Jif' wagon is a standard five plank wagon from the Hornby range given an imaginary name from a railway operating viewpoint, most likely for use in starter sets.

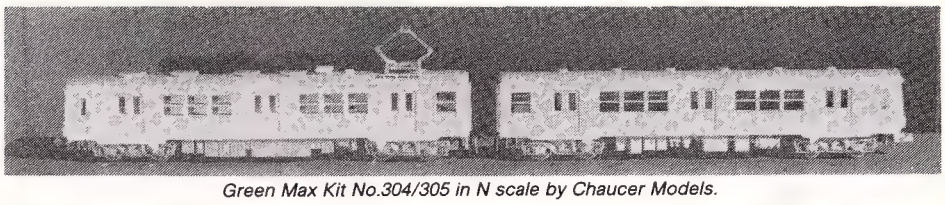
The wagon is fitted with Hornby's new four-wheel chassis with easy uncoupling bar. The model would certainly add variety to the goods wagon collection even if not strictly prototypical. However, unlike a certain TV commercial, you have to supply your own lemons!

Again details of availability and price cannot be supplied at this time.

Graham Ahern.

Green Max 'N' scale Japanese electric multiple unit rollingstock. Available from Chaucer Hobbies, PO Box 70, Canterbury, 3126.

Green Max models have not previously been reviewed but their catalogue shows a wide range of N scale rollingstock, structures and parts. The rollingstock is all of Japanese prototype but various items could be adapted to represent other railway systems if desired. The model I chose to assemble represents a batch of stainless steel suburban cars



Green Max Kit No.304/305 in N scale by Chaucer Models.

built in 1962 for use in Tokyo and is Custom Kit No.304.

It came in kit form made up of injection moulded plastic components. Sufficient pieces were provided to create a two car consist with two possible end shapes for the terminal cars. Custom Kit No.305 provides intermediate cars. Various roof vent arrangements were also possible depending on the front-end design adopted. The kit also contained transfers, clear styrene for windows and cast weights for each car. The power unit, bogies and pantograph are available separately.

Whilst all instructions are in Japanese, no real problems were experienced in assembling the carriages from the diagrams supplied. Care was required in removing the pieces from the sprue but minimal cleaning up was necessary. Britfix Liquid Poly was effective in gluing the components together.

This particular rollingstock has many design similarities to Vicrail's Clyde built suburban cars as originally constructed. I used the appropriate end panels to illustrate this fact but did not alter the remainder of the vehicle to the Vicrail appearance but this could be done relatively easily.

The samples supplied contained two power units of different lengths, neither of which matched the illustration of Custom Kit No.304/305 in the catalogue. It was therefore decided to use the air-spring style bogies even though some swapping of sideframes on the power unit was necessary. These bogies are quite similar to the Vicrail style.

The power unit operates on the split frame principle with the motor enclosed by two large segments of cast weight. This would seem to be more than ample weight to haul up to four vehicles for a basic consist.

The kit contained all necessary items to allow its complete assembly and lettering and with the power unit, bogies and pantograph, a four car set could be created for less than $50. I am sure that the Green Max rollingstock will find a place on many N scale layouts despite the lack of English instructions.

Graham Ahern.

Battery Boxes and electrical distribution boards for NSWR passenger/goods vans in HO scale by ABL Models, PO Box 56, Miller. 2168. Price: $1.50 per pack.

Battery boxes and distribution boards are found under most NSWGR/PTC/SRA passenger cars and under all brake vans. The battery boxes carry the numerous batteries that supply the electrical power for lighting inside and outside the cars/vans while the distribution board is the point at which the electrical power is distributed and protected. These timber framed housings are supported off the underframe of the cars/vans. In almost every instance the top hinged door of the battery box is accessible, indicating that it must be supported clear of the underframe. Likewise the electrical distribution board is supported clear of the underframe and body of the car/van.

The components are supplied in a clear poly bag. The various components are packaged separately. There are two battery boxes, a single and a double along with the distribution board. There are four double battery boxes to a pack, six single battery boxes to a pack while the distribution boards are packaged five to a pack.

They are epoxy resin castings that are free of casting defects and relatively free of flash. It will be necessary to lightly sand the rear of the castings to remove any waste epoxy. The castings are very highly detailed. Detail includes individual boards, hinges and flap locks on the battery boxes while the distribution board panels include the round connection/junction boxes, rectangular terminal box and the metal clad switches. The latter is a very good representation, the unusual shape of the switches being obtained.

Dimensionally the distribution boards are 13mm long, 6mm high and are supplied with a 1.5mm x 1mm mounting strip. The single battery box is 15mm long, 8mm high and 3.2mm deep. The double battery box is 32mm long, 8mm high and 3.35mm deep. Dimensionally the components measure up very well, except for the depth of the battery boxes which is a shade too thin. The battery boxes are fitted with the mounting/support timbers affixed to the end panels, and the discerning modeller may choose to blend this feature into the fixture of the box under the car/van.

These are very high quality components that will be very useful to the modeller who wishes to detail models with components that are well detailed and dimensionally accurate.

Bob Gallagher.

NSWR 'K' truck water gin kit in HO scale by Rails North Models. Available from Casula Hobbies, Phoenix Plaza, Macquarie Street, Liverpool, 2170. Price: $15.95.

The N.S.W.G.R. used a number of wagons to carry water around the state. Water was not only needed for locomotive boilers, but also as drinking water for staff. In the days when fettlers lived on track side there were a large number of water tanks along side the track, and these also had to be filled. The wagon represented by this kit is a 5000 gallon rectangular tank inside a doorless 'K' wagon. Generally these wagons were used to carry water to lineside tanks. The wagon was covered in detail in issue 84 of AMRM.

The kit is supplied in a stout card box and is accompanied by a double sided page of illustrated assembly instructions. The bulk of the kit is grey epoxy castings and these parts included a one piece water tank, wagon sides and ends, brake handles, floor and end braces. Axle boxes and water valve levers are supplied as metal castings, staples for shunter's steps and wire for detailing.

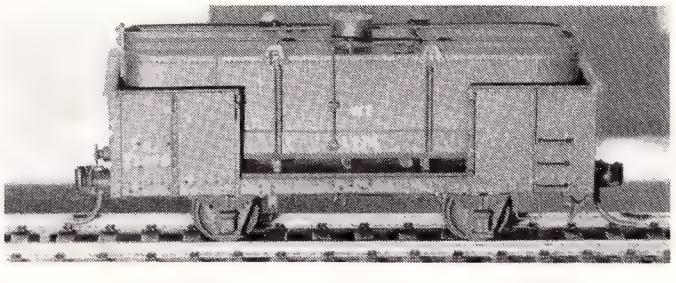
The detail on the kit is very fine and accurate. Detail includes tank rivets, lifting lugs, water filler and the dreadnought pressings on the wagon end. The size and detail on the axle boxes is a very good representation of the 'K' wagon axle box. Parts were free of casting defects and excessive flash. The sides however are very thin and were bent, but this was easily remedied by following the assembly instructions.

Following the step by step assembly instructions assembly was relatively easy, all parts fitting where they should. The various parts, being thin and finely scaled have to be handled very gently to avoid unintentional breakages.

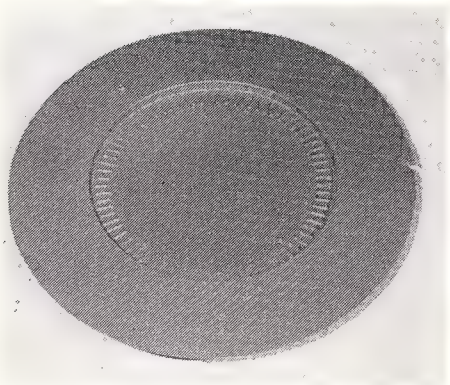
Kitbashers can take advantage of this kit by building it without sides and ends or by changing the ends to the plain style.

This is a very good kit, and is very closely scaled off the prototype. Unfortunately the fineness of detail on the model is also its bad point, for a number of detail items broke off with relative ease during assembly. This is not the model to hand around at a club meet, but would be very impressive sitting in a siding close to the front of a layout, where there is a desire to immediately impress any visitor.

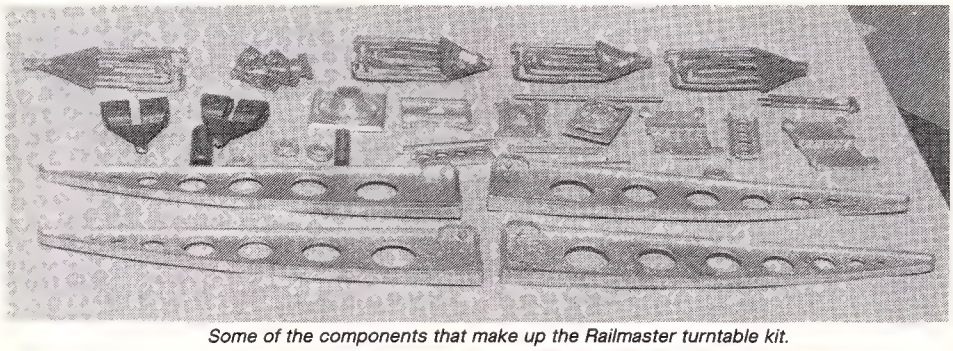
Es Davies and Bob Gallagher.



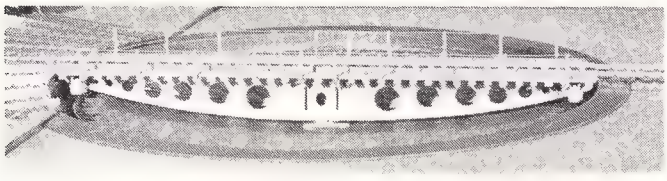
ABOVE: *Single battery box, electrical distribution panel and double battery box in HO scale by ABL Models.*
LEFT: *'K' wagon with water jin in HO scale by Rails North Models.*

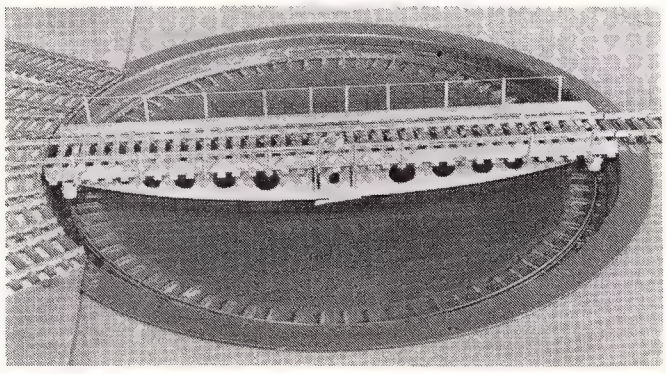


Vacuum formed (plastic) pit for Railmaster turntable.



Some of the components that make up the Railmaster turntable kit.





ABOVE: *Side view of completed turntable by Railmaster.*
LEFT: *Overhead view of completed turntable. Note the sleepers in the pit, vacuum formed.*

55' turntable kit in Sn3½ scale by Railmaster Models, 4 Karamu Street, Te Atatu. Auckland 8. New Zealand. Price: $NZ56.00.

Turntables are an essential part of railway operation, especially in the steam era for most locomotives were not able to run, at speed, in reverse. A turntable or a triangle was used to turn the engine, the turntable being the most common method.

This kit is a model of a N.Z.R. 55' turntable in Sn3½ scale, but as the profile has a distinct similarity to the N.S.W.R. 75' cast turntable and scales out to 74'7" in HO scale it is of interest to local modellers of HO scale, not forgetting the Sn3½ modellers among our ranks.

The kit is supplied in a stout card box, except for the pit which accompanied the box of parts. The vacuum formed pit is plastic, the castings for the table are primarily white metal backed up by brass (bronze) castings. Accompanying the components is a 4 page set of detailed, illustrated instructions, which include two pages of photographs. Included in the instructions is a list of components, identification of which is aided by illustrations.

The kit does not include any components for track, sleepers, handrail wire nor any powering or electrical pickup parts.

The pit, as supplied has an outside diameter of 431mm while the pit diameter is 261mm. At the edge the pit is 11mm deep to the top of the sleeper extending to 22.5mm deep in the centre. The pit has a rough 'ground' surface and has a circle of 17mm long moulded 'sleepers' at the pit edge. The pit centre is marked with an 8mm circle.

The table is a series of white metal castings that have to be glued together. Double sided printed circuit board was used for sleepers, being glued to the table top, with the rails and then the handrail supports being soldered in place. The handrail supports and locking brackets are brass lost wax castings while the centre bearing is a white metal casting with a brass tube glued into it.

The centre bearing has to be fixed to the centre of the pit by gluing or by small screws. As this is the most important part of the pit the latter is recommended. The ring rail (not supplied) has to be bent up and fixed in place with two gaps opposite one another so as to provide for electrical pickup for the track. Two pickups (not supplied) have to be added to the table, one at each end, to pick up power for the table rails.

As mentioned there is no provision in the kit for remote powering but there is provision of a 3/16" brass rod, which does provide for hand operation. If remote operation, by hand or motor power, is required a longer 3/16" brass rod will have to be acquired and fitted so that it protrudes under the pit.

The reviewers first saw this product in New Zealand last year and one has been fitted to a layout. It is not a simple kit to assemble for it has been made with attention to prototype accuracy as the main criteria and there has been very little attention given to provision of assembly lugs, etc. Regardless, it makes up into a fine model, but modellers must be prepared to put a lot of work in to achieve this result.

Currently the kit is only available from New Zealand from the manufacturer or from a few of the local hobby shops, such as Christchurch Model Centre, PO Box 13255, Armagh, Christchurch, New Zealand who does accept Australian Bankcard for payment. Recent legislation suggests that duty should not be applicable for products emulating from New Zealand.

Bob Gallagher and Es Davies.

Drums, sacks, bales, boxes and barrels — moveable loads in HO and N scales by Electrotren. Available from Locomotion, 14 Jennifer Crescent, Thirroul, 2515. Price in text.

Railways are used to carry goods — so if model railways are to represent the prototype they should also carry goods — unfortunately many model railway wagons, especially flat and open wagons, always seem to be empty. Producing a realistic load is not an easy task, even to the scratch builder, so the availability of the Electrotren range is a real asset to model railways in Australia.

The loads are all individual items that can be moved from one spot to another — they can even be used as removable loads in and out of wagons during prototypical time table operation. The loads are sold in poly bag packets of five and generally are available in both HO and N scales.

Drums — $2.43 (HO), $2.25 (N). Sized 14mm x 10.2mm (HO), 6.8mm x 4.5mm (N) the drums are slightly larger than the common 44 gallon drum that is used in Australian industry. The raised lip on each end is prominent as are the strengthening ribs on the side. The drums are precoloured and are stencilled on the ends 'GAS-OIL'. The product numbers are 2 (HO) and 81 (N).

Sacks — $1.70 (HO), $1.90 (N). Sized 14mm x 10mm x 4.5mm thick (HO), 9mm x 7.5mm x 3.5mm (N) the sacks are made of fine white cloth and are shaped like a bag of wheat, including the bound ears. The sacks have three coloured lines around the girth and some lettering (Spanish ??) which is easily discernible. The sacks are very light and hold their shape rigidly. The product numbers are 4 (HO) and 82 (N).

Bales — $1.70 (HO and N). Sized 12.5mm x 12.5mm x 19mm (HO), 7mm x 7mm x 11mm the bales are representations of bales of cotton and have been made from cotton bound in two light brown linen bands and are bound with copper wire. They are very light in weight and at a pinch could represent a bale of wool, even though they are the wrong colour. The product numbers are 7 (HO) and 84 (N).

Boxes — $1.60 (HO and N). Sized 10mm x 10mm x 15.5mm (HO), 5.4mm x 5.4mm x 9.5mm (N) the boxes are sections of timber which have been covered with 8" planks. The plain timber finish is highlighted with a 'FRAGIL' sticker on one side. Product numbers are 1 (HO) and 80 (N).

Barrels — $2.35 (HO). Product code 3, the barrels are available in HO scale only and are wood turnings. The curved oak barrel shape has been faithfully captured but the black bands are a shade too thick. Sized 16mm high it is 11mm in the centre and 9.8mm at the ends. The end panels are recessed, painted red and stencilled 'VINO'. One does not have to understand Spanish to interpret that they are wine barrels. To confirm the contents the 'oak' colour of the barrel is realistic.

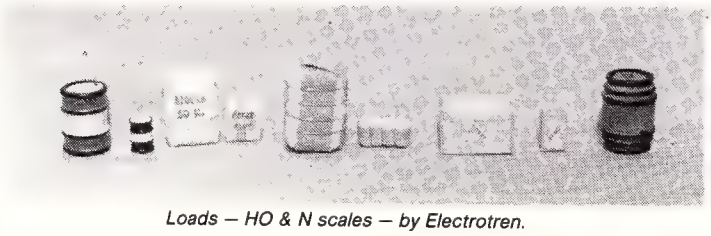
As previously mentioned the loads are sold five to a pack but they are also sold as a mixed pack. In HO scale there are five loads, one of each mentioned, in a pack which is coded 6 and is sold for $2.10. The N scale pack also contains five items, there being two bales in the pack. The package is coded 85 and is sold for $1.70.

Although a shade oversized to similar items used in Australia these are very useful loads that would look good in wagons or on loading docks. There is little doubt that they could also be readily used by OO, S and O scale modellers.

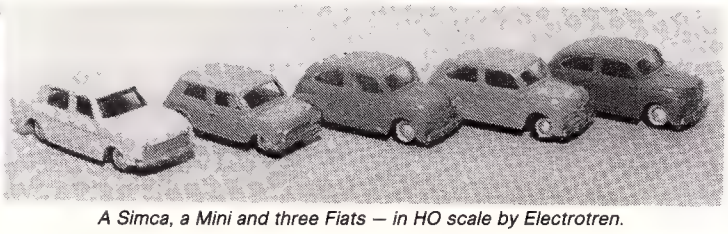
Bob Gallagher.

Motor vehicles in HO scale by Electrotren. Available from Locomotion, 14 Jennifer Crescent, Thirroul, 2515. Price: $ 4.30 pack of 5.

Motor cars have become a railway's worst enemy, and yet in model form a scene looks bare if a vehicle or two are not present. This package of five cars represent three models, two of which were seen in Australia. A Simca, a Mini and three Fiats make up the pack, only the modern square-line Simca not being available locally.



Loads — HO & N scales — by Electrotren.



A Simca, a Mini and three Fiats — in HO scale by Electrotren.

The Fiat 600 was widely used in the 1950s while the Mini reigned supreme on Australian roads in the 1960s and early 1970s. The Mini has a wheelbase of 22mm, a total length of 35mm and a width of 15mm. It does however have a flat appearance which reduces the height to 14mm (4'0"). The Fiat 600 has a wheelbase of 24mm, a length of 40mm, width of 17mm and a height of 14mm. The Simca has a wheelbase of 26mm, a length of 43mm, a width of 16.5mm and a height of 15.5mm.

The cars are marked, underneath, with the 'EKO' brand and show a good standard of detail. Windows are fitted all round, plus hinges, door handles, lights, bumpers and registration plates. The models were painted in red, green, grey and beige, the paintwork representing a well-polished finish.

Bob Gallagher.

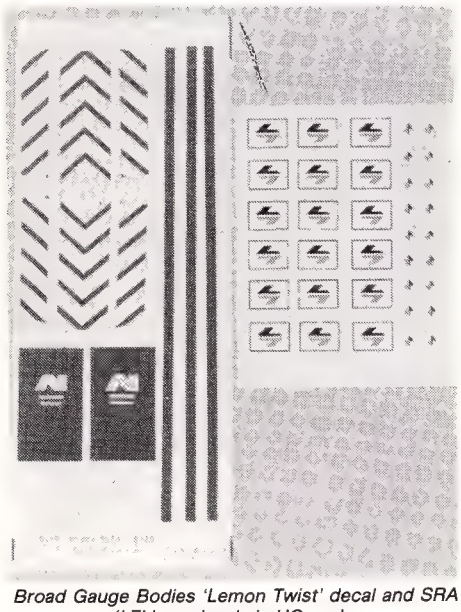
AN 8300 Class guards van decal set by Broad Gauge Bodies, P.O. Box 137, Daw Park, 5041. Price: $1.75.

These decals are designed for the Lima 8300 class guards van. They are printed in two colours, green for the door panels and striping, and yellow for the wagon numbers. A set of instructions, including a photograph, makes up the rest of the set. The model must first be painted yellow — recommended Humbrol No.24.

The procedure involves fixing the diagonal stripes on the ends, one green door panel per side, and a green stripe along the gutter line. The yellow numbers go either on a black square at the bottom left hand corner of each side, or else on a hanging plate immediately thereunder.

I could not fault the ease with which these decals could be used. They transpose from paper to model superbly. However, one must use a lot of decal setting solvent (Solvaset, Decalset etc.) particularly on the doors as this decal has to curve, not only up and over the top and bottom sills of the door, but also up and over the edge sills. Additionally, the end stripes must curve over the pre-formed hand rails and, in doing so, shorten the length of the strips to the extent that some do not quite reach the edge of the wagon.

The instructions miss one point (at least for us in the eastern States) and it relates to the door panels. Whilst they say how to put the panel on in detail, they then say "Repeat the door emblem panel for the other side". Which door? There are two. Is it directly opposite or diagonally opposite? I took a guess and tried diagonally (since proven correct).



Broad Gauge Bodies 'Lemon Twist' decal and SRA 'L7' logo decals in HO scale.

Nevertheless, these are good transfers and ones that can give a further variation to the popular Lima van.

Allan Brown.

SRA (and UTA) of NSW logo decals by Broad Gauge Bodies, P.O. Box 137, Daw Park, 5041. Price: $1.10.

These two-tone blue modern image logo decals come in two formats — with white backing (Cat. No.49) and with clear backing (Cat. No.50). Each set contains a sheet of 18 decals in a border measuring 10.75mm x 7.85mm, and 18 smaller ones of 5mm x 3.75mm. The logos themselves are 6.5mm x 5mm for the larger ones and 3mm x 2.5mm for the smaller. They are adaptable, as such, for all scales and uses. (Let's not forget that they appear on other things besides trains!) Each set is in a clear plastic bag with a green card top which contains instructions for fixing.

The colours appear correct and the artwork is crisp. There is good colour separation between the two blues. The decals transpose well from backing sheet to job. Like all good decal work, decal setting solvents and a final clear coat of lacquer/enamel helps achieve a good end result to the job at hand.

Allan Brown.

Mainline GWL 0-6-0 Pannier tank locomotive — Sample supplied by Intoy Projects, P.O. Box 33, Spit Junction, 2088. Price: $50.40.

This model was first seen at the 1982 Sydney Toy Fair but until recently has not been readily available. The 57XX Pannier tanks were very versatile locos with wide route availability. They first appeared in 1929 and were quite at home shunting, on transfer trips and working branch lines.

For attention to detail, this would have to be the best Mainline loco seen so far. There are rivets to satisfy the most avid rivet-counter, wire handrails, visible reversing lever in the cab and full brake rigging with external brake rods and brake shoes in line with the wheel rims. There is also considerable detail on top of the water tanks and the bunker has an imitation load of coal.

The model reviewed is painted in GWR unlined green with black frame, footplate, smokebox and cab roof. It is numbered 5764. There is also a version in BR black. The model ran well with quite reasonable low-speed characteristics.

The usual Mainline motor is neatly housed out of sight within the boiler/firebox area. The cab area looks rather vacant and placing a crew therein would make a big difference.

This is a most useful locomotive in model terms and is probably as good a plastic model as one could expect to see in OO scale. Any Great Western layout should not be without one.

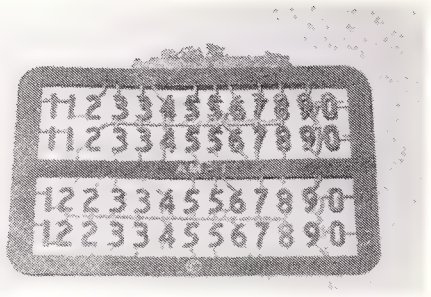
Graham Ahern.

N.S.W.G.R. steam locomotive cabside numerals in HO scale by AM Models, GPO Box 3835, Sydney, 2001. Price: $4.00.

NSW steam locomotives had a common feature, no matter what class and that was the 12" high cabside numbers. Except on some C38 class locos, the numbers were brass and were highly polished by the crew. The numbers were riveted to the metal side and the polished finish lifted the overall appearance of the machine. NSWGR used a special style of lettering on most rollingstock numbering, and this style was carried through to the cabside numerals.

The AM numerals are etched brass and are supplied in a poly bag with a card top. The numerals are fully etched except for a couple of tabs to hold them onto the main sheet. There are 52 numerals on the 41mm x 30mm sheet and all numerals '1 through 0' are represented. Generally there are four of each numerals and six of the more often used 1,2,3 and 5.

The numerals are 0.15mm thick and reproduce the unusual NSWR style. They are easily removed from the retaining frame and the retaining lug can be



cleaned up with scissors and a fine file. The numerals can be added with ACC (super glue) adhesive, and this should be done after the loco has been painted. Naturally the numerals should be highly polished prior to fixing to the cabside, and then laquered for protection. For the C38 the numerals should be chromed, except for the latter days of steam. Chromium plating of these parts may be a little difficult, for they are very small, a scale 12" high.

A very useful product, and a welcome addition to the NSWR scale market.

Bob Gallagher.

10 Class Tribute by Steve McNicol. Published by Railmac Publications, PO Box 290, Elizabeth, 5112. Price: $5.90.

This 64 page, card cover book is the latest from Railmac and no doubt covers Steve McNicol's favourite subject, the South Maitland Railways 10 class 2-8-0 steam locomotive. The 10 class, the last remaining class of revenue earning steam locomotives in Australia fist saw service in 1896, when they were delivered by Beyer Peacock & Co from the United Kingdom. The loco was designed around the working capacity of the then standard (NSWR) goods engine, some of which co-incidently also were built by Beyer Peacock. The rest is history, and today it is still possible to see steam in action in the Maitland — Cessnock area.

This book covers in detail the 10 class, using text, tables and photographs to expound and illustrate the subject. Special subjects covered include the working at Hexham, mileages, modifications, liveries, train workings and servicing. The book also discusses additional locomotives and proposed locomotives.

For the modeller there is some very useful information to be gleaned from the book and some very handy photographs to guide superdetailing. The many photographs are of high quality and some cover parts that would normally only be a fly-speck on any other photo. The detailing of the liveries is of special interest to the modeller, the chapter devoted to the subject covering the three colours (black, blue and green) and the many lining styles. This chapter is worth the price of the book alone.

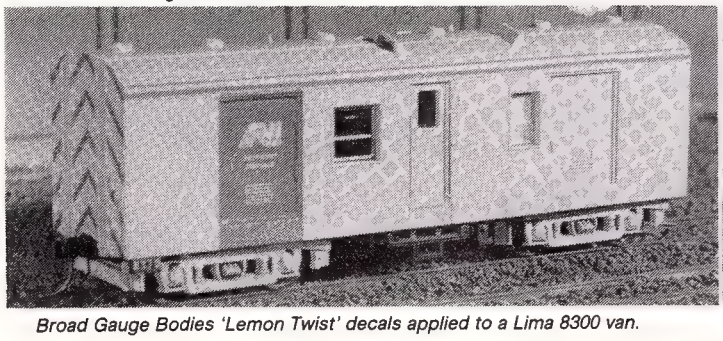
A feature that will be appreciated by modellers who like to model the 'loco-that-never-was' is a diagram of the 32 class which was designed to replace/supplement the 10 class in the 1920s.

This is a well detailed book that freely acknowledges the assistance given by the South Maitland Railways, a division of Coal and Allied Industries. Quality paper has been used and the photographic reproduction is very good making this publication a must for the modeller who is interested in the S.M.R. and the 10 class in particular.

Bob Gallagher.

Mile End's Steam Finale by Kenn Pearce. Published by Railmac Publications, PO Box 290, Elizabeth, 5112. Price: $7.90.

This 76 page, card cover booklet is a review of some events that occurred during the period 1957 — 1967 at the Mile End locomotive depot in Adelaide, along with other happenings at loco depots around the state. The contents of the book skips from one



Broad Gauge Bodies 'Lemon Twist' decals applied to a Lima 8300 van.

Great Western Railway 57xx Pannier Tank in OO scale by Mainline.

subject to another but each subject is interesting reading and gives an insight into activities at a loco depot.

Throughout the book is scattered information that at first seems useless to the modeller but put in the proper perspective could be very important to someone seeking loco usage, turntable sizes around S.A., loco mileages. For the modeller there is also the collection of photographs of the steam engines which not only provide illustrations of some hard to find detail but also give a pictorial representation of the South Australian Railway system. A feature of the book is the chapters at the end which discuss the class histories of the locomotives and an explanation of the terms used in railway circles. This latter aspect is very useful to the newcomer who is dumbfounded by the terminology expounded by 'railfans-in-the-know'.

A useful addition to the bookshelf, but also a booklet that will inform as well as being entertaining.

Bob Gallagher.

Hellcopter wagon in 'OO' scale by Hornby.

Another in the toy 'action' items from Hornby who consider it important that such items form part of their range.

The model uses the flat truck and bogies from the former 'American' range. The helicopter is positioned on the flat truck and for operation the mechanism of the helicopter is wound, a clip is fitted to the track and when the flat truck is pulled around the track and comes in contact with the clip, the helicopter flies off.

The helicopter wagon forms part of the Task Force Action set and is definitely intended for the toy market. Unfortunately the opportunity for serious flight testing was not available!

The availability of this item is again unknown at this time, nor whether it will be available here as a separate item.

Graham Ahern.

Book — 'The Fantastic Hobbyshop Matchbox Buying Price List' — supplied by The Fantastic Toy & Model Shop. Price: $4.95.

This is a booklet 185mm x 115mm of 24 pages, eight of which are illustrated. A reason is given for the book and details of how to use same. Listed are the model cars produced by Lesney Products under the following headings:

Matchbox 1-75 Series, 1953-1980.

Matchbox Models of Yesteryear Series, 1956-1983.

Matchbox Catalogues, 1956-1983.

Matchbox Majors.

Matchbox Accessory Packs.

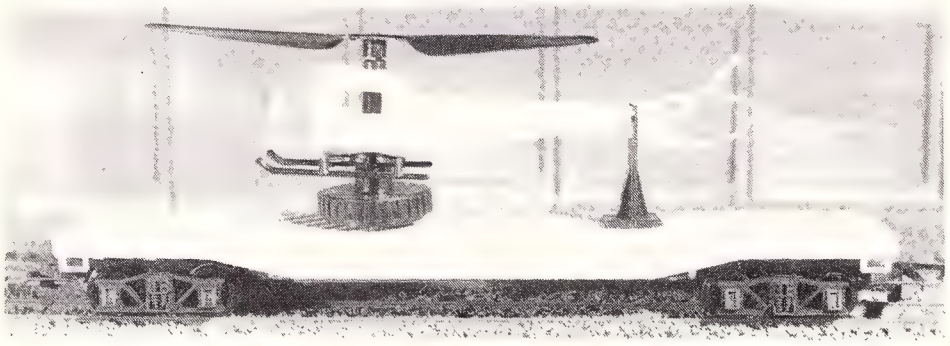
The description of each vehicle is brief: Matchbox item, year of issue, name, scale, colour, % value. Brief, because of compact nature of the book. Once the method of determining value is fully understood, then it is very easy to arrive at the suggested purchase price. If you are into model car collecting, then maybe the price of $4.95 is acceptable.

Max Burke.

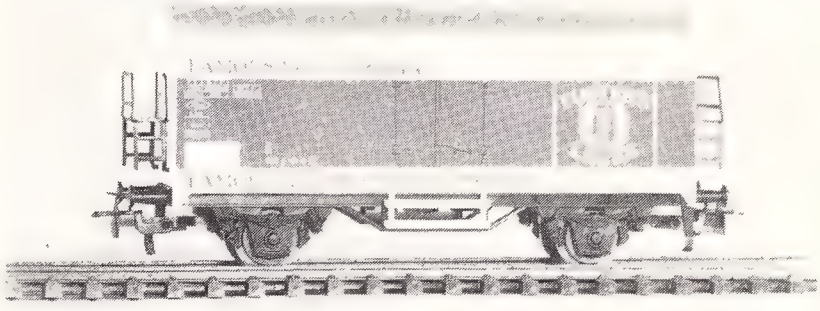
Australian National Railways 'Of' open wagon kit with Mallee root load in HO scale by Broad Gauge Bodies, P.O. Box 137, Daw Park, 5041. Price: $6.30

The 'Of' code of wagon has been developed from 'Obf' wagons to cover the demise of the S.A.R. 'Y' class open wagon. The downgrading to the 'Of' code has changed the pattern and mechanical requirements for the doors. For this reason this kit cannot be used as an 'Obf'. The 'Of' wagons are used to carry general traffic (while the 'Obf' is used for grain traffic) which includes mallee roots, cut mallee, petrol drums, boats, farm machinery, etc. For those not acquainted with South Australia, the mallee roots are used for fuel in household fires.

The kit, No.BK24 in the B.G.B. range, is presented in a card topped poly bag, and includes polyester castings for sides, ends, floor, underfloor detail and mallee root load, wire for grab irons and detailing, relevent decals and three sheets of instructions. All components are free of casting defects, straight and are not sticky.



Helicopter wagon — and helicopter in OO scale by Hornby.



'Foster's Lager' advertising van in HO scale by Marklin.

The assembly instructions accompanying the kit include those supplied for the 'Obf' kit in the B.G.B. range along with a special sheet for this kit. This sheet is detailed with prototype notes, specific load assembly details and a couple of large photographs. The decals supplied provide the scope for detailing the kit as an 'ANR — OF' as well as other variations in the class. Decals include the ANR emblem, wagon code and number, load and tare lettering as well as extra numbers to change the set Obf number.

Not included in the kit is the underframe, but the purchase and application of same is detailed in the instructions. Assembly of the kit follows that of the B.G.B. 'Obf', reviewed in the May/June 1981 issue of A.M.R.M.

The kit went together easily, and the instructions were of assistance. In place of the recommended Peco underframe Casula SAR style axle boxes and 25mm pinpoint disc wheels were fitted. This move left the coupler pocket at the correct height for Kadee No.5 couplers. The load readily fitted into the wagon, and the height of the load is adjustable via the height of the load support blocks.

The model was painted Scalecoat oxide red (No.2) to achieve the red livery and a yellow BGB 'ANR' decal from a previous kit was added instead of the red decals supplied. The wagon differs to the 'Obf' previously released by BGB, the door pattern being changed.

Completed this kit made up into a fine model, the load adding character to the overall appearance.

Bob Gallagher and Graham Ball.

Fosters Lager bill-board van in HO scale by Marklin. Available from Marklin Distributors, Box 1648 GPO, Sydney, 2001. Price: $15.30.

Advertising on the side of railway wagons is not new and it is not limited to the USA or Victoria. Model railway manufacturers have also been known to decorate their products with well known advertising signs, regardless of prototype accuracy. The Fosters Lager is one such product that does not have a prototype but does have appeal to modellers, especially those who appreciate decorative models.

The van is a standard Marklin four wheel ice cooled insulated van. It is fitted with 10.3mm pinpoint wheels, with NEM flanges. Wheels can be supplied for Marklin (uninsulated) or for two rail (insulated), at no extra charge. Standard Marklin centre sprung, horn-hook couplers are fitted and these readily couple with standard Lima models. The standard of the injection moulded body is very high and the model tracks freely.

The signwriting has been applied without any misalignment on colours. The blue, white, red and gold of the Fosters emblem has been neatly created. The only criticism of the model is the lack of paint around the door handle and hinges. The remainder of the wagon is white with the roof being dull silver.

As previously mentioned, the wagon may not be prototypically correct but it is decorative, and without doubt would be a talking point on a layout. One should not overlook that in its own right it is a fine model.

Bob Gallagher.

Com Rail and ANR (AN) Central Region emblems in HO scale by Broad Gauge Bodies, PO Box 137, Daw Park, 5041. Price: $1.75.

Over the past ten years the now Central Region of Australian National has undergone many name and emblem changes, firstly Commonwealth Railways, then Australian National Railways and lastly Australian National. This decal pack supplies the modeller with an extensive number of the different emblems used over this period.

The 47mm x 154mm decal sheet is supplied in a poly bag, the card top doubling as the application instruction sheet. The 25 emblems are printed white onto a clear backing sheet and are accompanied by six 3.3mm x 3.3mm and eight 4.5mm x 5.8mm black on grey 'X's.

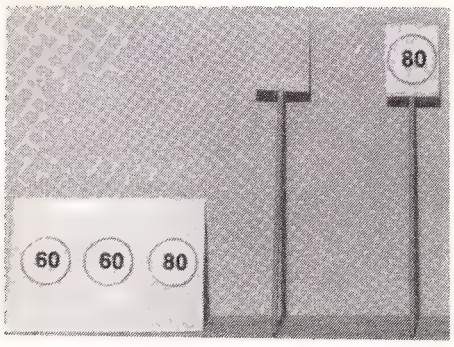
The emblems supplied include the 'winged' Commonwealth Railways emblem (3) which are 18mm long; 28.3mm x 5mm 'boxed' Commonwealth Railways (3); 19.5mm x 10.5mm boxed Australian Nation Railways (3); 28.3mm x 5mm boxed Australian National Railways in Italic lettering (3); 7.3mm x 3.6mm boxed 'ANR' (3). The 'CR' letter symbol is supplied in three sizes, 4.7mm high (2), 4mm high (3) and 2mm (5) while the 'ANR' letter symbol is supplied 4.7mm high (2).

The decals slide readily off the backing paper and there is no evidence of the decals breaking up during transfer. A very useful decal for those modelling Australian National, or thereabouts.

Bob Gallagher.

Australian road speed signs in HO scale by Christine Hicks, PO Box 35, Fairy Meadow, 2519. Price: $2.95 pkt.

Road signs are part of our every day life. No matter where you go on the road there is a sign of some command or other — 'stop', 'give way', cross-



ing, etc, etc, The signs represented in this pack are road speed signs. They are supplied in a poly pack which is capped with a gold (printed) label. A set of instructions accompany a couple of assembled signs, while the speed signs are on a separate sheet of adhesive backing paper.

The signs are fabricated from 0.2mm sheet brass soldered onto a steel 0.9mm dia. post. The signboard is 8.5mm x 11mm while the post extends 31mm from the lower edge of the sign. The signboard is painted gloss white and the post matt grey.

The signs are supplied for metric speeds, of '60' and '80' kph. The black numerals are 2.7mm high and are encompassed by a red 7.5mm dia. circle on white self adhesive plastic paper. To add the sign to the board, simply cut the required sign off the main sheet, peel off the backing paper and add to signboard. Trim excess with a sharp knife.

The instructions are explicit in all facets except for the size of the hole required to accept the post. A No.59 drill should be used. There are two signs to a pack, and the task of assembling them and adding to the layout would be only a few minutes. Provision has been made for adjustment of overall height of the signs by the over length of the posts. There are two posts and relevant signs to a pack.

As supplied — a very fine addition to the Australian modelling scene.

Bob Gallagher.

Point levers in HO scale by Rails North Models. Available from Casula Hobbies, Phoenix Plaza, Macquarie Street, Liverpool. 2170. Price: $1.50.

Point levers and frames are a very common item in the railway yards. Generally they are of two types. One is the ground throw over lever, and the other a lever frame where one of more levers are mounted. This frame can be mounted on the ground, on a platform or inside a cabin (sometimes called a signal box).

The components supplied in the poly bag package is a single ground throwover lever and a two lever frame. The parts are metal castings that show no signs of casting imperfections or flash.

The ground throwover lever has a base of 7.5mm x 4.3mm, a height of 3.7mm and the 'ball' diameter of 2.8mm. The 'ball' is in the locked, or fully over position. These are used alongside the point in yards and sometimes on branchlines. Detail includes pivot bolt, mounting bolts and side frames.

The lever frame consists of a frame and two levers. The frame has a base of 4.4mm x 7.6mm and a height of 5.6mm. Cast into the top are two grooves that hold the levers. The levers are 13mm high and the lever body is 1mm wide x 0.25mm thick. Detail on the levers includes the (normally polished) round handle and release lever and lock, a device that is operated by a staff key. (See Australian Railway Signalling series of articles in AMRM for further details.)

The levers are very fine, and care should be exercised when fitting the levers into the base. These levers are usually found in areas protected by staff keys. The application of a coat of paint is all that is needed, once the levers have been fitted to the frame. Both items are in the superfine detailing classification and would enhance any layout.

Bob Gallagher.

'N' SCALE SURVEY REPORT

In the December 1982 issue of the Australian MODEL RAILWAY Magazine a request was made to 'N' scalers to write in and indicate which was (to them) the correct scale for building Australian models — 1:148 or 1:160. The objective for AMRM was to determine the correct scale for plans. Correct being determined by the greater numbers.

As it happened, it was no contest, but from the numerous letters received, a few useful and very interesting topics were raised. Within this report we plan to share a few of these.

A total of 29 letters were received, only one being omitted from the voting. Incidentally, it was the only 'N' scale model railway club to vote, but it was felt that a blanket 140 votes for one scale was unacceptable. Regardless 1:160 won hands down, recording 22 votes, 1:152.4 (2mm) received 4 votes and 1:148 received 2 votes.

1:160 seemed the logical choice before the survey was held and it was confirmed by the overall vote.

Why the scale problem? Well excerpts from the following letter commences an explanation.

"The dichotomy of the two commercial N scales 1:160 and 1:148 can be traced to the historical decision by the United Kingdom manufacturers of British outline models to adopt 4mm:1 foot rather than 3.5mm:1foot (1:76 v's 1:87 scales). This decision stems from the fact that the English prototypes are small, a result of the very restricted loading gauge in the UK, in comparison to European and North American railways. These latter are, of course, modelled to HO scale which gives a nice sized model. When British stock is modelled to HO the result is a rather small item of equipment. That extra 0.5mm:foot in OO gives a model of comparable size to the European/American HO.

By the same reasoning, the British manufacturers of N scale equipment decided on a scale of 2⅛mm:foot or 1:148 rather than the strict 2mm:foot or 1:160 adopted by the European/American model makers.

Since in Australia we use the European/American 1:87 HO scale it seems logical we should also adopt the 1:160 scale for Australian outline N scale modellers . . . .

Your question might perhaps be better answered by the Australian manufacturers of N scale rolling stock — What scale do they use?"

AMRM checked — Nearly all use 1:160.

Other 1:160 voter comments include:-

"Many model railway publications and commercial manufacturers of ready-to-run equipment regard N gauge as 1:160. Like most, I am fairly dependent on these sources and would prefer 1:160 as the standard.

Enjoyed article by Rowan Cole in the December (1982) issue — hope more N gaugers will follow his example and contribute descriptions of their layouts and techniques."

"I model VR prototype in 1:160 scale. This scale should be regarded as the correct one as it gives a model gauge of 8.97mm for standard gauge 4'8½", whereas 1:148 scale will give a model gauge of 9.70mm. (If 9mm is taken as exactly representing 4'8½", the scale would be 1:159.5 which of course is very close to 1:160)."

"My vote is for a scale of 1:160, which according to calculations best approximates the ratio between 'N' gauge and standard gauge rail width of 4'8½" (1435mm), viz 159.46. Please not let us encourage the problems of HO and OO scales."

" . . . please note that I use a scale of 1:160 to standardise all scratch built models (NSWR). This choice of scale was dictated by the use of a commercial steel rule purchased from Hobbyco. (Brand 'Model Railroad Scale, Walthers')."

" . . . record my vote for N scale as 1:160. I find that most US and Continental manufacturers conform to that standard (the exception is the UK scene) and this makes kit bashing a lot easier.

Any plans for structures, locos, cars, etc, which could be published 1:160 would be very welcome in my book. Thank you for this opportunity to express an opinion on the subject."

There was those whose opinion differed from the majority, and those nominating 1:152.4 were very explicit in the very detailed explanation that accompanied the vote. Some comments included:-

"I don't work in either scale. I know this may seem odd at first but please listen to my argument and I hope you will see some of the logic in it. I work in 1:152.4 which may seem odd but that is 2mm to the foot which means when taking measurements off Data Sheets or any thing else it's pretty easy to convert. If it's in HO measurements it's an easy calculation of 1/1.75 or 4/7 or multiply by 0.571428.

When looking at a plan of — say — a 36 class with a wheel dia. of 5'9" it's easy to see that it is 11.5mm. 1:148 scale works out at 2.05mm:foot and 1:160 scale equals 1.905mm:foot."

"Actually, I think you could leave your plans as they are, and include the (a) conversion factor somewhere on the diagram, for 1:160 or 1:148 or both. The plans of the V.R. 'C' class were of tremendous help to me . . . "

"I find 2mm to the foot very convenient in transposing measurements from prototype drawings . . . Keep up the good work on this great magazine."

Last, but not least there were to 1:148 followers, and the remarks from one summed up a viewpoint:-

"The larger the scale the better as you can make a personnal decision as to how detailed the model is going to be."

Maybe the exercise has been futile if the remarks of one modeller are seriously considered:-

"Frankly I could not care less what scale your drawings are in as you can always scale up or down as the case may be."

Or maybe the Post Script on another letter could sum-up the exercise.

P.S. I like your magazine no matter what the scale." ■

Edited by Bob Gallagher.

WHAT GOES DOWN, MUST COME UP!

Continued from page 42.

are ambiguously worded, or not kept at all. The one example I can give without troubling those concerned happened in the late 1950s. In the official records, IA 6816 is listed as 'Not traced Stockdale 1/7/62' and marked 'Off Register'. So it seems to have disappeared between about 1957 and 7/1962. Now whilst checking numbers stamped into the underframes of freight stock I can across a '6816'. Found! It had been converted to a breakdown van and was lettered 'No.19 Crane Tender'. Without further information, I presume this wagon was used to replace IB 4995 in this traffic and the conversion done expediently without fuss. And then maybe the records of work done were lost?

I now present a list of 'I' trucks not traced between the years 1914 and 1962. For perhaps one of the reasons above, no demise is known for these trucks not traced at Stocktakes:

30/6/19: I 895
1/7/23: I 356, 381, 2509, 4072
1/7/26: I 321, 340, 372
30/6/29: I 318, 325, 1254, 1362, 11497
1/7/33: IB 367, 878
1/7/36: IB 348, 350, 506
1/7/45: IB 6223
1/7/62: IA 1524, IB 1779, 6798, 6800, IA 6816 (Item 7), IB 6922, IA 7083, 7567, 7623, I 7676, IA 7767, I 11438, IA 11940, 12663

Anybody interested in tracking these numbers down and are unable to check on underframe number stamps, do not have written information or were not witness to the demise are recommended to dangle a fishing rod and line off the end of Port Melbourne Pier or Geelong or Portland or . . . ■

CONVERSION OF A MAINLINE TANK WAGON TO A VR FOUR WHEEL TANKER

By Peter Eisenhut

The Mainline model, as it comes out of the box, bears a close resemblance to some types of VR 4-wheel tankers. With a little work it can become a reasonably accurate model, with much less effort and skill needed than a complete scratchbuilding job.

The first step is the disassembly of the model. The tank can be prised out by cutting off the ladders at the bottom and pulling apart the end braces. Also remove the wire bracing. Take out the weight and clean off the glue. Remove and discard the couplers. With a sharp hobby knife or single edge razor blade and some needle files, remove all parts of the British-type brake gear. Pay special attention to carving bits of the brake levers from the axleboxes, springs and the solebars.

Cut off and discard the buffers, then cut a rectangular opening in the floor to receive the Kadee No.5 couplers, which should have the mounting lugs cut from the draftgear box (Fig.1). This operation is best carried out with the wheelsets removed. The couplers are glued in with Selley's Kwik Grip, as MEK will not work on the chassis.

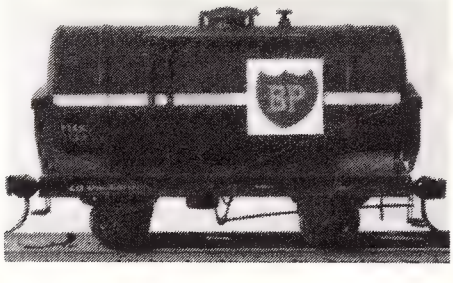
Return to the tank and remove the ladders completely. In addition clean off the mounting lugs at each end and at the bottom of the tank. Leave the valve wheel next to the dome but cut off the valve on the other side. Fill all holes with plastic body putty such as Testor's. The walkways are cut back to the supports which will result in a 4mm width. Cut halfway through from the top, then snap off and clean up with a file or emery board. Cut the end braces from the tank support and, with a suitable knife and judicious filing, shape as per Fig.2. The tank support itself is discarded.

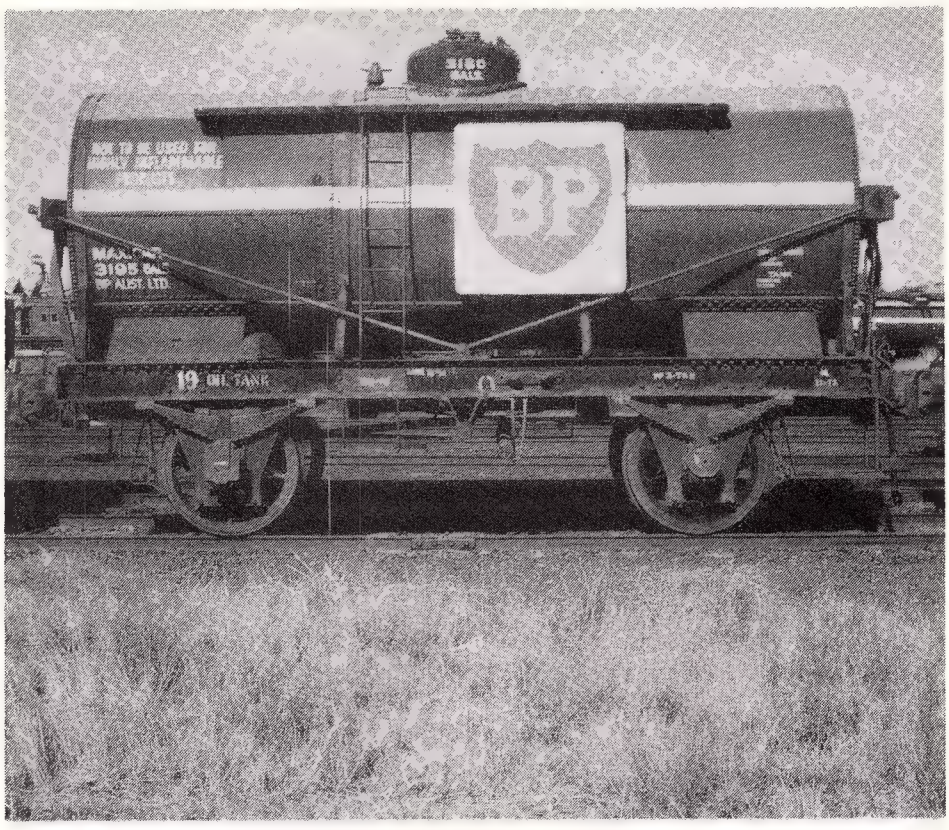
Re-insert the weight and secure with Kwik Grip. Mount the tank directly on top of the weight, again with Kwik Grip, making sure it is accurately centred on the chassis and not leaning to one side. When this is sufficiently dry to be handled, fashion four tank supports from small rectangles of 20 thou. styrene. They should fit at about a 45 degree angle between the chassis and the tank underside.

The remodelled end braces are then glued, with the uprights sitting on the chassis. The longitudinal bracing is fashioned from lengths of Slater's 20 thou. styrene rod.

The handbrake is mounted in the same way as on other VR four wheel vehicles, the hangers being of wire and the handle a thin strip of styrene. Kadee or North Yard 10.5mm wheelsets should just drop into the existing axleboxes. This will lower the wagon to the height required for the Kadee couplers.

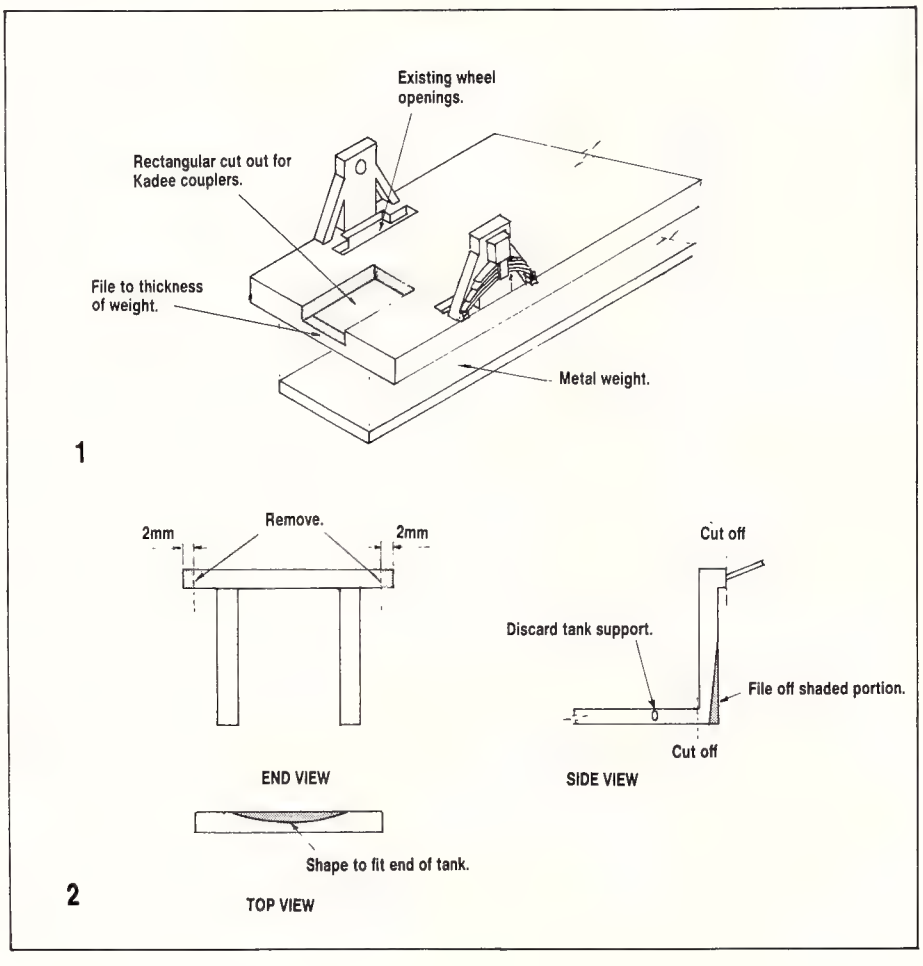
The ladders are of brass and they are available at most hobbyshops. The shunters' steps





BP oil tanker No.19. Photographed at Port Melbourne in February 1980 by Peter Eisenhut.

are from Broad Gauge Models and help to give the model a typical VR look. The entire wagon is painted with Floquil Engine Black, while the white stripe is applied with white ink and a mapping pen. The oil company signs can be done by hand or you can hunt for suitably sized ones in catalogues, service station pamphlets etc. ■



MAILBAG

Sir,

Please find enclosed a cheque for a years subscription. I bought one of your issues in Toy Warehouse last year and I must say that it is the most knowledgeable and interesting magazine I have ever read.

Darren Lewis,
Macksville. 2447.

Sir,

I have been in the hobby for nearly all my 17 years of life, but have only just started getting into the serious side of it. But I've struck a problem and could anybody help me. I wish to start scratchbuilding but don't know how to go about it. So if anyone could write to me (address below) with a list of tools and materials and also how to start, I would be most grateful.

Michael Wierzbinski,
468 Warrigal Rd.,
Ashburton. 3147.

Sir,

With reference to the unfamiliar class of diesel electric (2406-2451, etc) dated April 1983.

The 1550 class is a less powerful version of the 2100 series introduced in 1970. They are based at Mayne Depot and are used for general duties. Further locomotives were later constructed and numbered in the 2400 class locomotive. They range from 2400 — 2482. This particular class of locomotive was introduced in 1972.

Here is some data on the 2400 — 2482 class diesel electric locomotive.

Introduced — 1972.
Builder — Clyde Engineering.
Power — 1119kw.
Length — 18.06m.
Engine — General Motors.
Weight — 91.44t.
Total in class — 82.

S.Martin,
Mackay. 4740.

Sir,

Although I've been purchasing and subscribing to AMRM for several years, I've only recently realised that its produced largely by voluntary labour. This is a great service you do for our hobby.

Your Reviews and News sections are better than those in most overseas publications. The advertisements are also most helpful.

Jack Sinden,
Armidale. 2350.

Sir,

Congratulations on 20 years in print, the quality of your magazine has continued to improve and the April 1983 issue with its colour pages was superb.

In the article 'Changing Colours' by Bob Gallagher there is a reference to 8101 having been painted in the reverse colour scheme. This is the second time I have read this, the first time being in an ARHS publication earlier in the year.

I find these statements very difficult to believe as the S.R.A. of N.S.W. had not approved any colour scheme for use on the 81 class as the S.R.A. were about to introduce a new colour scheme. Unfortunately due to the lead time for delivery of the underframe and the air conditioners these items were delivered in the old colour scheme i.e. black underframe and air conditioners with a red outside panel. The cabs and carbody received a grey undercoat and remained in this colour until they could be painted in the approved colour scheme.

Incidentally, the first few locos are painted in enamel rather than polyurethene as to change the paint type would have required complete stripping back to bare metal. This of course could not be economically justified.

Furthermore no paint was purchased for use with the old, or the reverse colour scheme.

It is therefore highly improbable that the Bathurst works of Clyde Engineering could have implemented the reverse colour scheme.

I look forward to seeing photographic evidence to support your statement.

Bruce Norton,
Granville. 2142.

Thank you Bruce for your letter. Maybe a reader can supply the photographic evidence that will inform us ALL as to the accuracy of what appears to be a 'rumour'. — Editor.

Sir,

In response to Mr John Harding's letter of last issue (AMRM June 1983), I wish to add to his list of information supplied, and perhaps clarify a few points raised by him.

I, like Mr Harding, have my greatest interest in the full-sized prototype and I still actively pursue that interest. I spent a number of years in the (then) NSWGR employ at both Eveleigh and Chullora Locomotive Workshops and recently authored (at the Editor's request) an article on the paint schemes carried by Streamline '38' class engines (AMRM April 1983).

Suffice to say that future articles on liveries carried by other (then) NSWGR locos are being prepared and, because of such research, I make the following notes.

'38' Class Paint Schemes.

It is quite correct to paint non-streamline '38' class engines green with a black smokebox, as locos 3806-3810 inclusive were painted this way in the 1946 until the mid 50s period. Locos 3811-3830 inclusive were all green, with black-fronted smokebox (refer NSWRTM Publication — 'Flyer' for photographic reference).

As Mr Harding states, plain cream lining is not correct, but application of red/cream/red on an HO scale model boiler band may prove difficult to apply. Locos 3813 and 3830 carried both green and black smokeboxes during their later years.

'32' Class Paint Schemes.

Research has shown that it is possible to have variations in '32' class with regard to the combinations of frames, running plates and buffer beams.

It is, in fact, possible to have an old-framed engine (Mr Harding's term 'curved edge') with a new style running plate (straight) and a wooden buffer beam. SRA of NSW Photo. No.B281991 (dated 1934) illustrates engines 3306 and 3374 with this styling of 'front end', both painted green with black smokebox.

'36' Class Paint Schemes.

A number of points need clarification here.

Belpaire-boilered '36' class engines lined out in red were certainly not 'one-off' jobs, as implied in the letter. Both Chullora Workshops, where most '36' overhauls were carried out and, to a lesser extent, Eveleigh Workshops, painted '36' class engines black with thin red lining. It was applied to tender sides, lengthwise along the running plate of the engine, on the cylinder casings and, occasionally, to the firebox and boiler bands.

Regarding specific locos mentioned in the letter, it should be noted that the '36' class engines fitted with smaller (33½" diameter) spoked leading wheels were 3661-3675 inclusive; 3612 and 3673 were the engines fitted with smoke-deflectors (refer NSWRTM 'Roundhouse', July 1979, p.2) and 3612 also had its numerals on a raised plate on the cabside (refer NSWRTM 'Roundhouse', October 1976, p.4).

I trust this additional information is of use to some modellers.

Ray Love,
Castle Hill. 2154.

Sir,

I wish to commend the staff for producing a great magazine and, in particular, the articles on the Lima 12 Wheelers. As I am new to the idea of kitbashing, your step-by-step instructions have given me the confidence needed to chop up new rollingstock and come up with an acceptable model to grace my layout.

A. Brown,
Hurstville. 2220.

It is Alex Brown, not Allan. — Editor.

Sir,

The letter from John Harding published in the June 1983 Mailbag relating to NSWR passenger loco liveries has prompted me to write regarding what I feel are a number of inaccuracies which it contained. At the outset I feel that Mr.Harding should be complemented on taking the trouble to write and share his knowledge for the obvious benefit of modellers generally. I hope that my 'criticism' will not deter him or others of similar knowledge from further contributions.

I was a schoolboy through the 50s and also a dedicated 'locospotter' in this period. I scrimped and scraped my paper boy earnings and pocket money together to obtain rail tickets and film for the old box camera and travelled most of NSW during 1955 and 1956 in order to pursue my spotting activities. From 1957 through to 1960 I worked as a trainee engineman and fireman on the NSWGR.

Regarding the C38 class — my recollections are that the green non streamlined version more often than not had an all black smokebox. 3807, 3808, 3813 and 3832 are all examples that I have photographic evidence of which confirms this. Readers are referred to articles in July 1977, October 1978 and July 1981 Round House, Ron Preston's NSWGR in STEAM and the two Century of Locomotives publications.

The rest of C35 locos which were not painted green appearing in the Steam Locomotive Data book published June 1974 is at variance with those noted by Mr. Harding. However, in view of the rebuild dates I would tend to think that Mr. Harding's list is the most accurate. Similarly, the Data book list one additional green C32, ie 3380. However, once again I think that the Data book may be wrong as 3380 is not listed as having been rebuilt.

From my observations, the C32 class can be grouped into three main categories:-

(1) Original (unrebuilt) or low frame with wooden buffer beam, curved leading edge of smokebox support and curved running board.
(2) Low frame, wooden buffer beam, curved smokebox support (ie, same as (1) above) but with straight running board.
(3) Rebuilt or high frame, steel buffer beam, straight smokebox support and straight running board.

The first 50 locos were introduced between February 1892 and July 1893, the next 25 between October 1901 and April 1902 and were all built by Beyer Peacock. It seems that subsequent deliveries commencing with 3276 from Baldwin, introduced November 1905 saw the change over from the curved to the straight running board and all subsequent deliveries appear to have this feature.

Reference to the Steam Loco Data book, under the heading 'Date rebuilt, reframed' shows that 63 of the C32 class were so treated, commencing with 3306 in April 1937 and ending with 3203 in September 1954 and these relate to category (3) above. Apart from the differences noted above, engines with new frames had their boilers raised four inches.

Readers are invited to study photos of C32s and note the area of the frame which is visible between the rear of the smokebox and the sandbox over the leading driving wheel. The difference between low and high framed versions should be obvious. The brass Berg's model of the C32 falls into category (1) above whilst I believe the proposed Casula Hobbies C32 will be the high framed (or category 3) version.

Finally, Mr. Harding's assertion that black passenger engines were not lined in red is misleading, particularly in relation to C36 locos rebuilt with Belpaire boilers etc. My recollections are that the majority, it not all, were so treated when rebuilt and after subsequent overhaul repaints. I recall this vividly from my days as a cleaner at Eveleigh during 1957/1958. The red lining was applied to the cylinders, air reservoirs on each side, cab sides and tenders. The lining tended to disappear after a time under grease and grime etc. Photographic evidence of this can be found in Century Plus of Locomotives as well as Round House of October 1976 and January 1977. Reference to these publications and the Steam Locomotive Data book discloses that:-

(a) 3612 and 3673 were fitted with smoke deflectors.
(b) 3612 had cabside numerals on raised plate — refer October 1976 Round House, page 4.
(c) 3661 to 3675 inclusive fitted with bogies with smaller wheels, amongst other bogie differences.

Rebuilding of C36s with Belpaire boilers etc commenced with 3643 in July 1953 and ended with 3661 in December 1957. 3622 and 3663 were not rebuilt and were scrapped as round boiler versions.

In conclusion, timing restraints have not enabled me to research all this as much as I would have liked. It is hoped that those readers who are far more learned than I on these subjects will be motivated to offer their own contributions.

Bob Birdsey,
Toongabbie. 2146.

Sir,

In the October 1982 issue, I said I would not read AMRM again, but a recent visit to one of the local hobby shops changed that! I was looking at the hobby books and saw that on the cover of the June 1983 issue of AMRM you were doing an article on

the 'Kingfield, Twinlakes & Maine Railroad' so I immediately purchased a copy, because I am an admirer of US narrow gauge railroads.

I think this story and the 'One Man's Way' article was superb! Even though I model a standard gauge U.S. railroad, my freelance 'West Virginia Tidewater & Ohio R.R., the K,T & M article has inspired me to build either a modular HOn3 or HOn2½ layout with a standard gauge feeder.

This was a superb issue and I will start reading your mag again.

David Dunn.
Bowna. 2644.

Welcome back David! — Ed.

Sir,

Concerning Max Chaseling's letter of the June 1983 issue referring to the 'skrawker', I would like to bring to notice a similar instrument known as an 'OLFA P-CUTTER 450' which is almost identical to that described by Max. The knife is supplied with five extra blades enclosed inside the handle, which I have not had to use as yet. I have had my knife for about two years and have used it regularly for scratchbuilding and kitbashing.

The knife can be purchased from any hardware store for about $3. I offer this suggestion to those modellers who may not have the facilities to manufacture a knife themselves.

May I offer my congratulations on an excellent job done by your volunteer staff in the production of a first rate magazine.

Warren Backhouse,
Melba. 2615.

Sir,

Your correspondent, Peter Sansom (AMRM June 1983) in the final section of his letter, remarks about the lack of parts suitable for Gauge 1, 10mm scale.

I take it that he is unaware of the Gauge 1 Association, which has members in the UK, USA, Canada, Australia, New Zealand and various other countries and the Assn., or some members, can supply castings for bogies, W irons etc. to members. Also, some firms in the UK supply loco and rollingstock wheels, either as castings or machined, to the public and at a discount to members.

Should Mr Sansom or anyone else be interested in Gauge 1, either in 10mm or ⅜" scale, they can contact me either by phone (02) 95 5988 or in writing and I will provide further information.

Jack MacMicking,
247 Eastern Valley Way,
Middle Cove. 2068.

Sir,

You print a number of letters expressing appreciation of the magazine, but most of these are in terms of general approval. I would like to be specific.

I would like to compliment you on the balance of your presentation. Your first three issues for 1983 are good examples: prototype and scale model, layouts and operation, down-to-earth tips on techniques and modifications, most Australian states represented, a variety of scales and pretty penetrating product reports.

I get more reading out of AMRM than any of its overseas contemporaries, which I have now given up buying.

And I must say I get a lot of fun from Dick Stein's highly acidic cartoons.

My only suggestion would be:- 'More spec copies to newsagents'. I had been muddling along for three years before I first saw my first copy.

Keep up the good work. The AMRM sub is my "year's best buy".

Roger Gould,
West Wyalong. 2671.

Sir,

I was delighted to see in your April 1983 issue, the Uganda Railway Baldwin, which makes it an American-built loco, for an African railway modelled by a Pom living in New Zealand and now printed in an Australian magazine. However it was a little disappointing to see that you have my height right but my name wrong!

Jim Smith,
Wellington. N.Z.

Jim's models were featured on Page 12 of the April 1983 issue. Sorry about the name error Jim, Smith and Small are different.

Sir,

I regret having to take issue with a correspondent but the letter from Mr. John Harding in the last issue was merely the latest in a series of mis-statements and half-truths on the vexed issue of colour schemes worn by NSWGR steam locomotives. Regrettably, too many unsourced statements have been made and have passed into modellers' folklore as fact.

To take the points in Mr Harding's letter in order:
1. 38 class: He correctly states that all were painted green in the 1946 period. However, the colour of the smokebox could be either green or black; the following definitely had black smokeboxes — 3806, 3807, 3809, 3812, 3813, 3817, 3823, 3830 (all illustrated in the NSWRTM book 'Flyer'). 3808 and 3826 (illustrated in 'Century of Locomotives') and 3828 (in an SRA Archives print). This list is not exhaustive, and there is also photographic evidence that some, at least, of these locos at some time in their green lives had green smokeboxes.
2. 32 class: The straight edge at the front of the frames on some of these locomotives is a feature of those reframed, a process carried out on some 69 of these locos between 1937 and 1954. ALL 32 class were 'rebuilt' in the sense that they were superheated, which involved boiler, smokebox and frame modifications. The shape of the footplating at the front end is not related to these modifications: the curved type was characteristic of the first batches, while the straight footplate was initiated by the Baldwin batch and subsequently spread as engines were shopped. Some of these engines with curved footplating retained it until the end. These matters are gone into in greater depth in the article on the C32 class by J.H.Forsyth in the January 1961 issue of the ARHS Bulletin, while the numbers of those engines reframed can be gleaned from the listing in the SRA publication 'Steam Locomotive Data'.
3. 36 class: There were other engines painted green in the pre-war period than those listed. Perusal of the NSWRTM Roundhouse articles on this class will show further examples. Incidentally, while the statement that 3808 was named 'Hunter' and 3609 'Hawkesbury' is normally correct, 3633 and 3640 carried brackets for nameplates and wore them when either of the offically named engines was in workshops. The brackets can clearly be seen in the photo on p.5 of 'Flyer', while the nameplates can be seen in the photos on p.25 of April 1976 Roundhouse and p.6 of October 1976 Roundhouse. The photo on p.4 of the April 1976 issue shows 3613 with one of the one-piece numberplates mentioned by Mr. Harding at the end of his letter. Of course, it was 3661 to 3675 which had smaller, spoked bogie wheels.
4. Red Lining: The statement that only the 30s and 38s had red lining is quite incorrect. Photographic evidence indicates that 1301, 1307, 1308, 1311, 1313 and 1316; 2001, 2005, 2007, 2010, 2016, 2024, 2025 and 2029 (all illustrated in R.G.Preston's book, 'Tender Into Tank' and 2026 (in 'Century of Locomotives') all had red lining in regular traffic, while the D58, D59 and AD60 classes all entered traffic with red lining. In addition, most, if not all, C36 class were given red lining when rebuilt, and many certainly carried this until the mid-1960s.

I apologise for being somewhat long-winded, but I feel that this matter has been vague and inaccurate for too long. Perhaps a fuller article, accurately sourced with the sources cited, could be published at a later date.

Ian A. Dunn,
Eastwood. 2122.

A fully detailed article on the liveries of the NSWGR steam locomotives would be welcomed — any offers. Editor.

AMRM NEWS

Continued from page 44

Expected Arrivals.

Southern Models advise that the 'GY' wagon is in a boat on its way to Australia.

Brass models are still coming thick and fast, the following being the current expected delivery dates. Alco's Vicrail 'T' class is due in October 1983; Mansfield's NSWR 40 class diesel is due in December 1983; Casula's C32 is also due in December; Berg's roundtop C36 is due in August while the D55 is due in October 1983.

McBees Hobby Centre have the pilot model of the 'C' van in hand, and production will commence shortly.

Weico Models have advised of their future plans which include an 'N' scale SRA of NSW 81 class kit, due for release late in 1981. Weico also plan to withdraw the FX Holden (HO scale) kit soon and replace it with an Holden FJ in sedan, panelvan and utility style. Release is due in July. Also due for July release is the Melbourne SW2 tram, which is a whitemetal kit. Weico have also recently produced a short run of their Spirit of Progress cars (N scale), which were sold out very quickly. Another run is contemplated, but in order to keep the price down to an acceptable level they will only be available from Weico Models.

Other News.

McBees Hobby Centre advise that the Vicrail 'C' class diesel project has been cancelled. Word has it that the final price for the proposed model was far too high for the market.

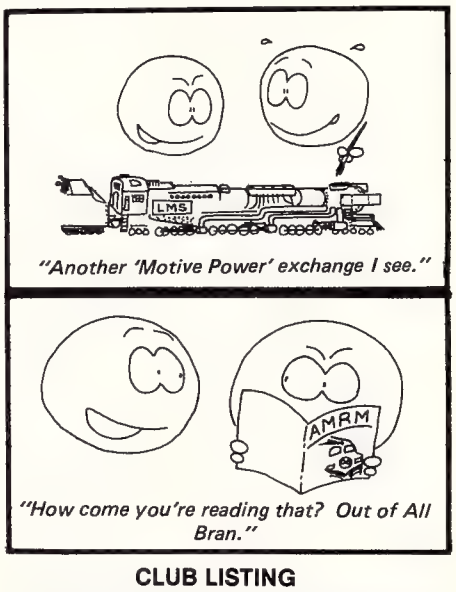
Main West Models have advised that they plan to cease production (for a while) on a few of their kits including the 80, 422, CL locomotives and FS/BS coaches. ■

CAN YOU HELP

For the preparation of future articles, we require information concerning the following classes of NSW rollingstock, and would be pleased to hear from any reader possessing the relevant data.

- KHG/NVKF Goods Brake Vans — logos and codes currently carried by cars 34202, 03, 04, 08, 11, 13, 15, 20, 22, 23, 26, 29, 32, 39, 43, 46, 48, 50.
- JHG/NVJA/NVJF Goods Brake Vans — logos and codes currently carried by cars 34002, 05, 09, 10, 12, 20, 32, 34, 36, 39, 40, 54, 58, 64, 72, 74, 80, 82, 93, 95.
- UHG/NVUF Goods Brake Vans — logo and code currently carried by car 34099.
- GHG/NVGA Goods Brake Vans — logos and codes currently carried by cars 30901, 13, 15, 21, 27, 35, 43, 45, 50, 52, 59, 61, 62, 63, 65, 66, 72, 79, 84, 85, 86, 88, 90, 92, 93, 94 and 31000, 05, 08, 10, 12, 13, 18, 19, 21, 28, 29, 33, 34, 35, 36, 43, 44, 47, 50, 53, 54, 69, 77, 82.
- MHG/NVMF Goods Brake Vans — logos and codes currently carried by any of these vans.

Please address data concerning these topics to the projects co-ordinator, Paul Rogers, P.O. Box 235, Matraville, N.S.W. 2036.



"Another 'Motive Power' exchange I see."

"How come you're reading that? Out of All Bran."

CLUB LISTING

In the December 1983 issue, a listing of Model Railway clubs will be printed. All clubs wishing to be included in the listing are invited to send relevant details to :-

Model Railway Club Listing
SCR Publications,
P.O. Box 235,
MATRAVILLE. 2036.

Details required include . . . Club name and address (if applicable), meeting days and times, Secretary's name and address, membership availability, and club specialty.

All details must be on hand by 1.10.83.

Bogie Bolsters Made to Measure

Cutting out blocks of wood or plastic, or cementing layer upon layer of sheet plastic to get a bogie bolster of sufficient height is a time consuming job to be avoided if possible. But it is possible. Plastic wall plugs or, rawl plugs as they are sometimes called, make excellent, no fuss, bolsters for both scratchbuilt of kitbashed projects.

Available from most hardware or building suppliers, the wall plugs are made by various firms such as Expandet, U Bolt, etc. and come in sizes ranging from 3.5mm to 15 mm diameter, and up to about 50mm in length. I have found that the 5mm size accommodates an 8BA brass screw very nicely and is the size I use mostly for my HO models.

All you do is approximate the length of plug you will need, allow for a bit extra, and then cement one end to the previously marked bogie centre line on the underside of your model. Airfix model cement, MKK and Superglue all work with this plastic. Allow to dry thoroughly before screwing on bogies.

Fit bogies onto bolster without screws, turn right side up and test for correct coupler height. By allowing a bit extra it will probably be too high, so carefully trim a small amount off the top of the plug, test again, until correct height is achieved. File top level so that bogie sits evenly: nothing looks worse than a wagon with a drunken lean to one side.

When you are satisified screw bogies to your wagon with countersunk screws, and you have a simple, and reliable bolster system. As there are usually 20 plugs to each packet you can do 30+ wagons in this manner, so the cost is minimal.

Peter Gibbs

MIXED GAUGE

Steam, diesel, unfinished trackwork and a motley collection of unmatched rolling stock. I am sure that I am not alone in possessing such a diverse bag of rail modelling miscellanea. The problem that faces us all is how to run our favourite 'Ghan' consist on the same layout as 'The Overland'. Wandering through the State Library recently, I uncovered a possible solution to the problem.

The book I chanced upon is a publication of the Mile End Railway Museum entitled 'Proceed to Peterborough'. I am led to believe that it is no longer available from that source. The story it tells is as follows:

"Steam working on the Peterborough line continued unaided until 1963, when the then South Australian Railways provided twelve 830 class Goodwin Alco diesels to work the main line, in particular the run from Peterborough to Broken Hill. Narrow gauge Garratts of the 400 class were retired and 4-8-0 'T' class locos were relegated to working the Quorn and Wilmington branch lines and shunting duties.

"Although the 830s eventually worked through to Quorn, a section of doubtful track to Hawker forced the use of the lighter 'T' class on that line for a weekly movement of freight and return rollingstock. In the mid sixties the line to Wilmington was upgraded and 830s took over. This left Peterborough — Hawker once a week as the only 'regular' steam working.

"As the new standard gauge Broken Hill — Port Pirie link approached completion, steam locos were brought out from retirement to allow conversion of the 830s to the new gauge. In 1968 and 1969 a partial return to steam working occurred, aided by record loads being shipped from the Broken Hill mines to the smelters at Port Pirie. This 'burst' of steam continued until 9 January 1970, when T251 ran Gladstone to Peterborough, thus ending our touching story of 'steam triumphant'."

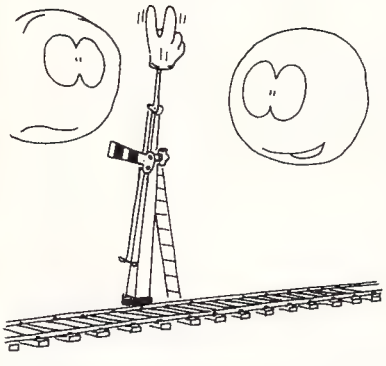
The points to be noted are many. What an excellent excuse to 'mix it up'. Let's face it, South Australia had such an odd-ball railway system that a little exaggeration surely wouldn't go astray. In the spirit of a recent AMRM article 'The Great Northern Railway', a semi-prototype, semi-freelance modeller can actually run his steam power without using the time honoured excuse of a twice daily ARHS special to all stations!

Perhaps putting Spencer Street Station at Cobar would be a bit rude, but why not a branch line in the process of being upgraded being served by some venerable steam stock, pending its fate at the wheels of a 930, 'C', 44 or whatever? Let's face it, as Commissioner of your own railroad, there's always some excuse.

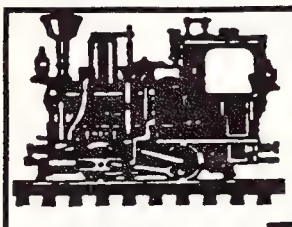
My own plans are to lower the Goyder Line by just a few kilometres and have a standard gauge 'Ghan' departing Belair Station (thus accommodating the 'Overland') and moving through an area interspersed with the occasional private mining company line. As I can't put myself into the 'brass Rx' category, any rollingstock and/or motive power needed is sure to be found on the second-hand shelf of my local model railway dealer.

Sit back with your graph paper and pencil and study the idea — maybe it's not quite as silly as it sounds. ▪

Robin Dick.



"Ah, now that's to catch the driver's eye!"



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Limited runs of discontinued Stephen Johnson Models kits will continue to be undertaken from time to time.

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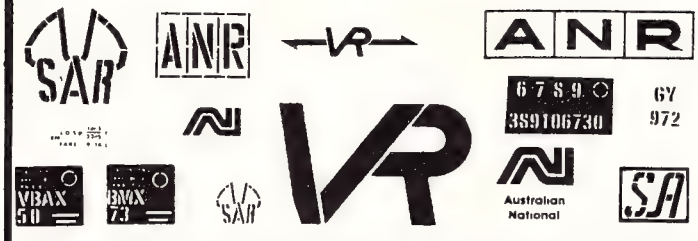

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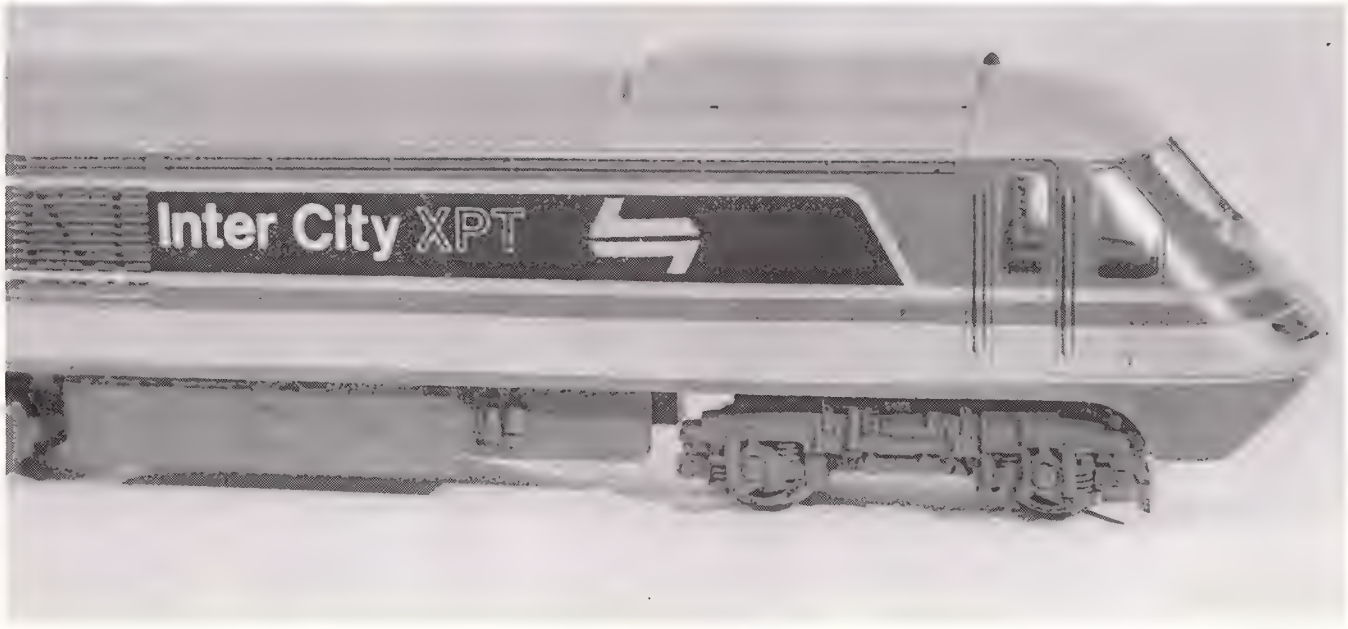

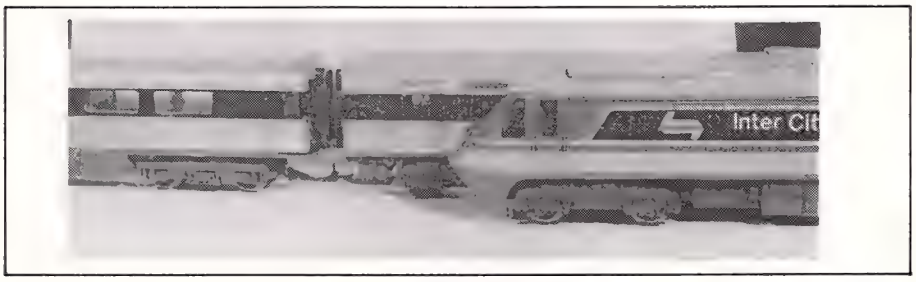

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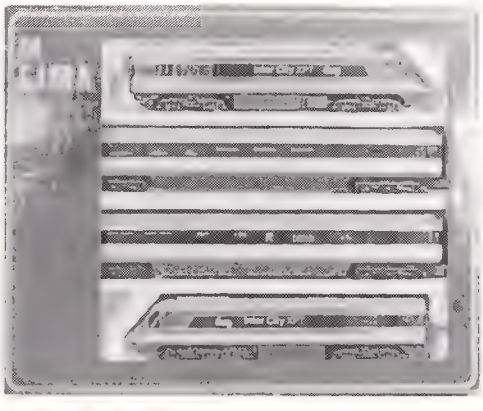

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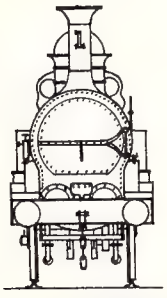

P.O. Box 111
Blaxland
N.S.W. 2774

Mike Vowles

Eddie Garde

The aim of Railscale is to produce the finest quality handcrafted, brass, ready to run, models of N.S.W. Prototype. The models, notwithstanding the limitations of HO scale, have been designed to incorporate the very latest in engineering and production techniques. Each model, which will be made in Australia, will be completely painted and then numbered to the customer's requirements.

Our first models, the NSWR 1 Class locomotive and the 1855 passenger cars will be released as a limited run, however, the long term aim is to get away from limited runs and to have a catalogue of models which will always be in stock.

Railscale has been set up as a serious business, not a hobby, for example, no models will be released until they are ready, painted and in stock.

Future plans include the majority of the 19th century locomotives, passenger cars and goods wagons.

Further details of each model will be advised over the next few months.

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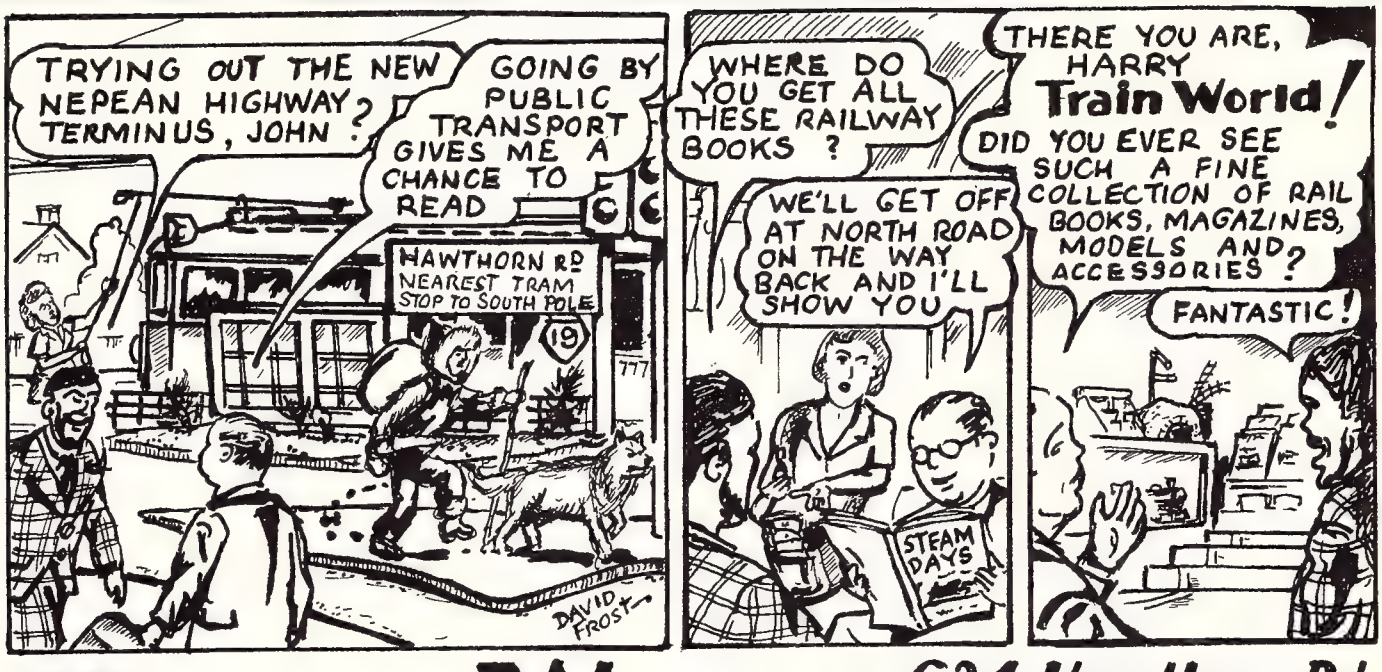
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19
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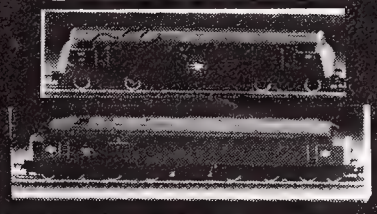

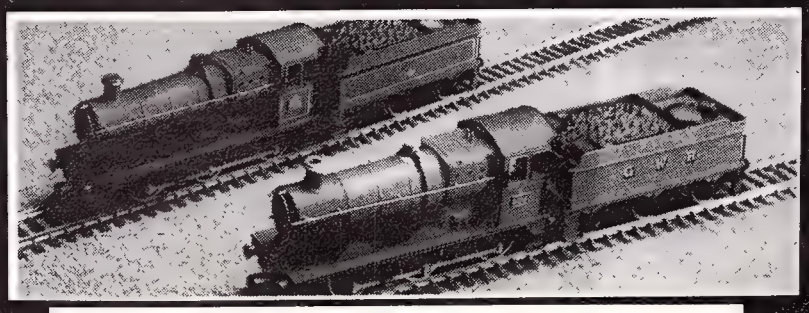

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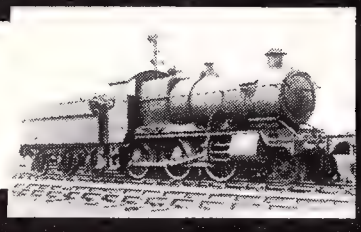

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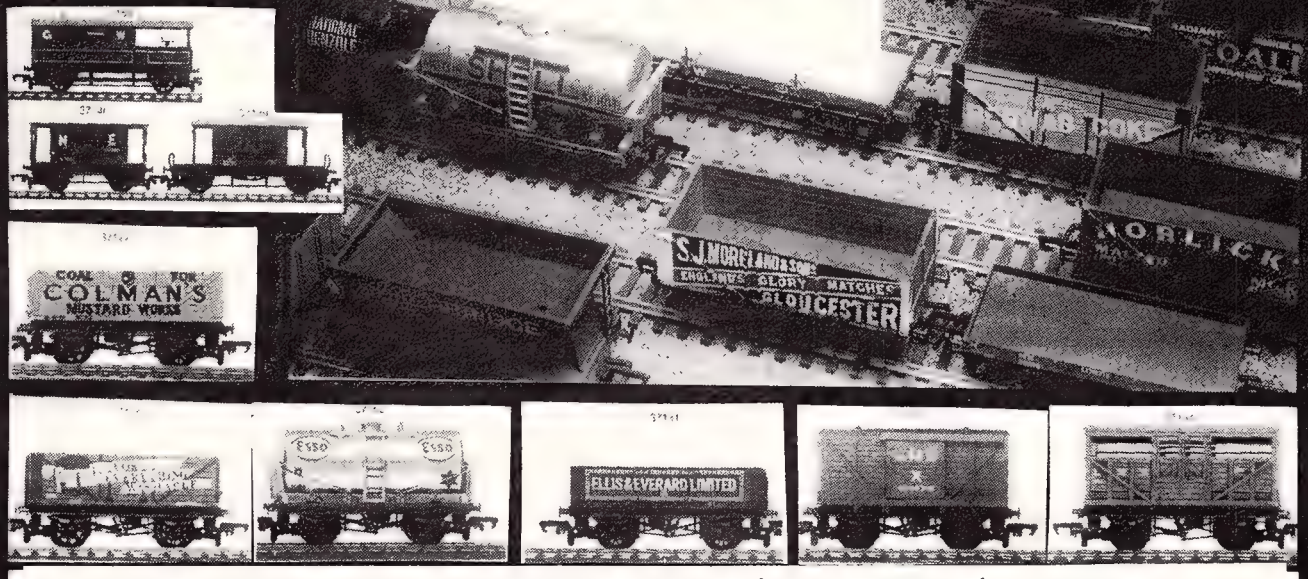

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(The above ALL NEW kits do not include bogies)

All prices shown are subject to change without notice.

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NSW 42 class diesel —	$13.95	ea $11.95
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VR S class diesel —	$13.95	ea $11.95
ANR GM class diesel —	$13.95	ea $11.95
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Mehanotehnika	$22.50	ea $21.00
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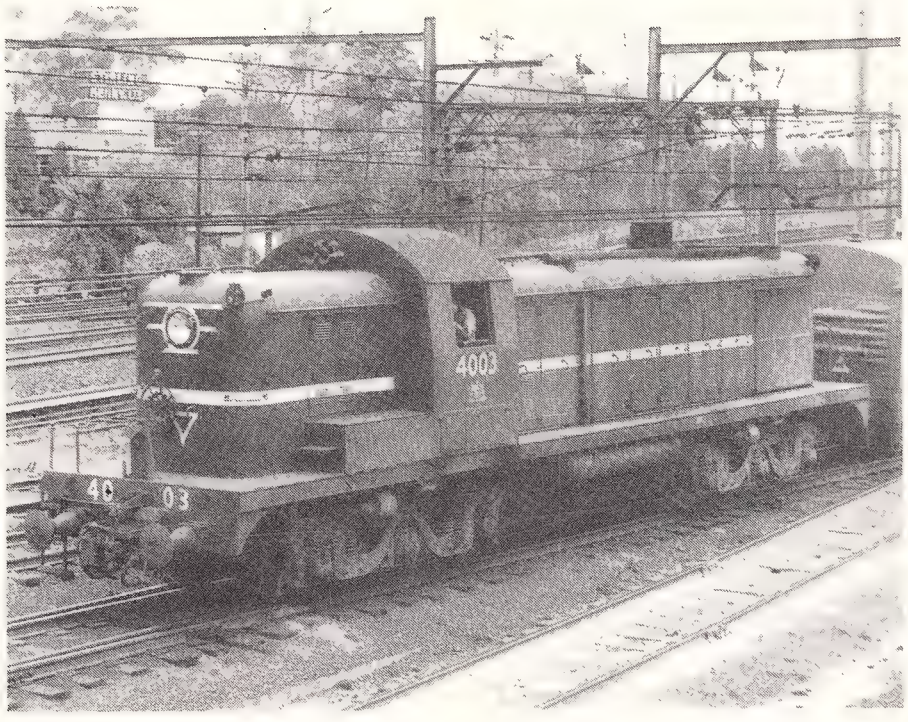

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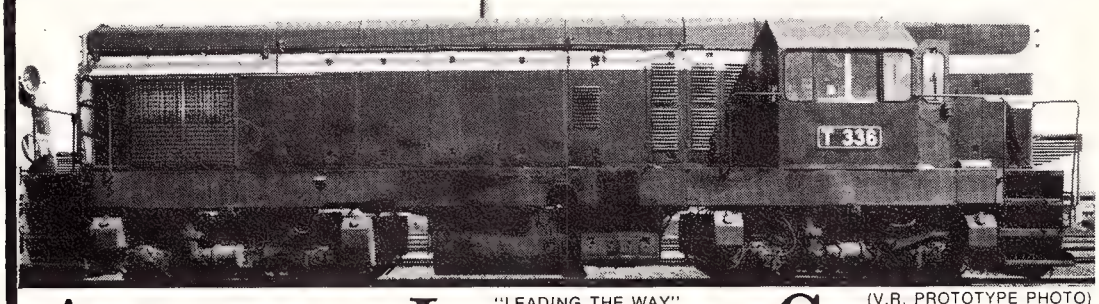

(V.R. PROTOTYPE PHOTO)

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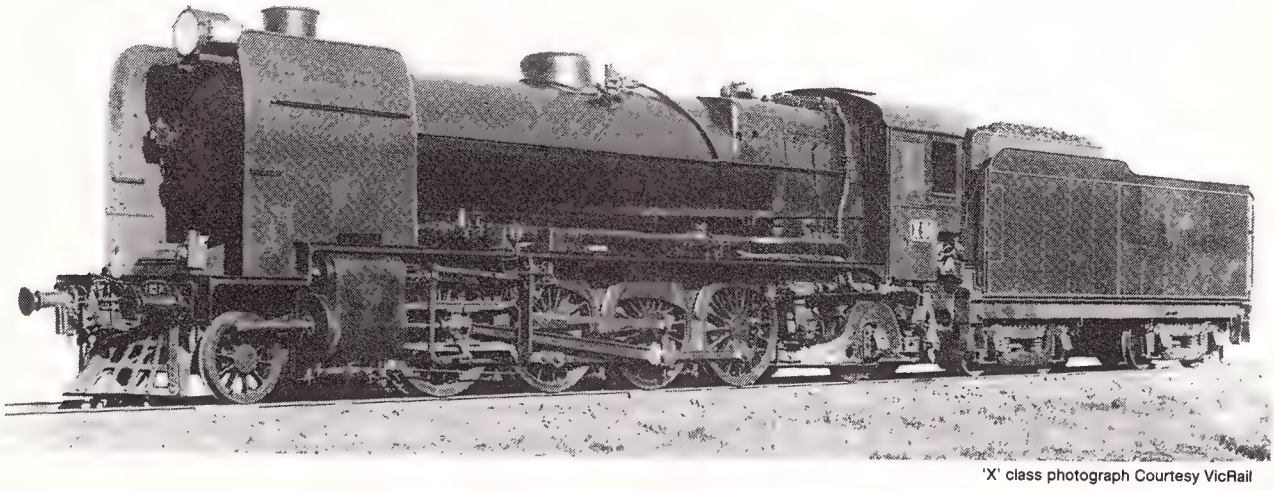
Projected Price $275

VICTORIAN RAILWAYS "X" CLASS 2-8-2 . . . . . HO SCALE

This handsome heavy main line freight locomotive will be handcrafted in Korea by Samhongsa of Korea.



'X' class photograph Courtesy VicRail

Designed for fast and heavy freight service on main lines radiating from Melbourne, these giant 'X' class locomotives were amongst the largest to run in Victoria and 29 were built at Newport between 1929 and 1947.
This highly detailed and accurate model will feature a powerful can motor and Idler gearbox drive system, fully working Walschearts valve gear, stainless steel tyred wheels, complete cab and backhead detail, all visible booster pipe work fully modelled plus cab windows and headlight glazed to mention just a few of the refinements to be expected from this manufacturer.
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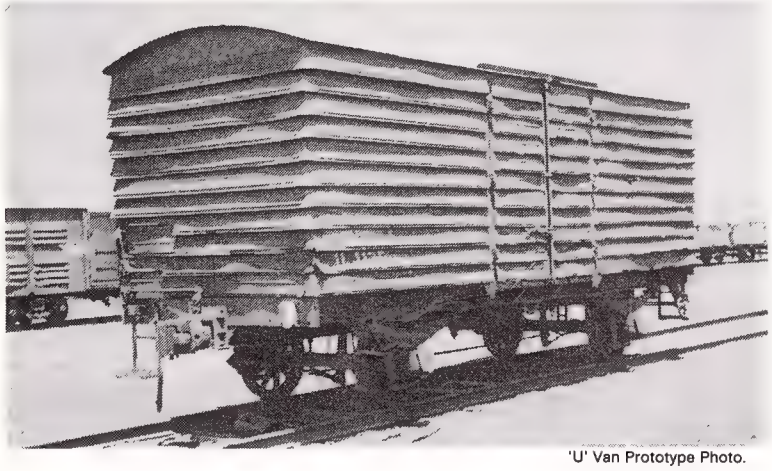
Quantities are strictly limited so secure your order now with a **$75 deposit.**
Contact your present supplier or B.G.M. direct.
Delivery expected mid February 1984.

VICTORIAN RAILWAYS "U" VAN . . . HO SCALE



'U' Van Prototype Photo.

Used widely as a general purpose louvre van, some displaying painted billboard sides. This injection moulded polystyrene kit features easy to follow assembly instructions and includes metal wheels, brake shoes and hangers and brake cylinder. **Price $7.95**

Complete your "U" vans with our V.R, shunters steps and brakewheels in etched brass. **Price $5.50**
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Complete your "GY's" with our etched brass brake lever and brake rigging. **Price $6.50**

Prototype Photo.

Found adjacent to many station platforms, this accurate HO Scale model of a Victorian Railways **'C' class Water Column** is now available as a white metal kit featuring movable spout, drain sump and assembly instructions. **Price $7.95**

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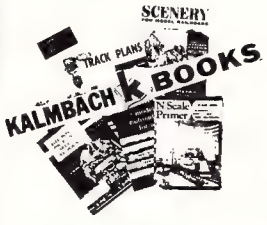

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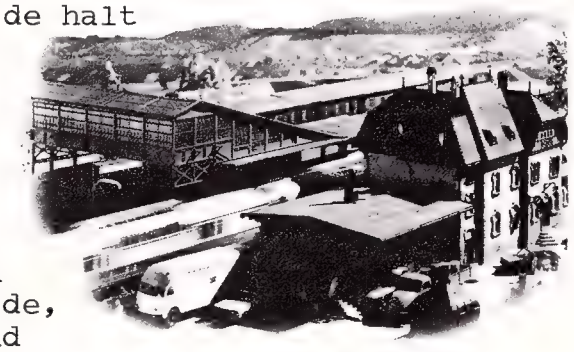

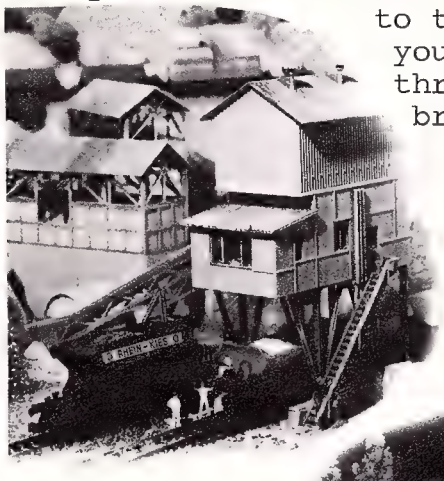

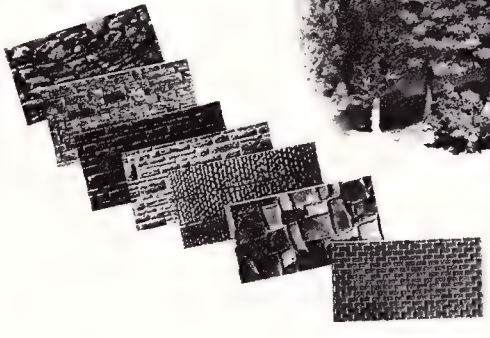

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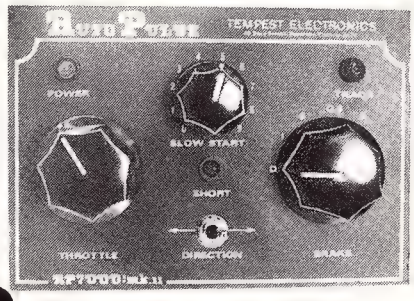

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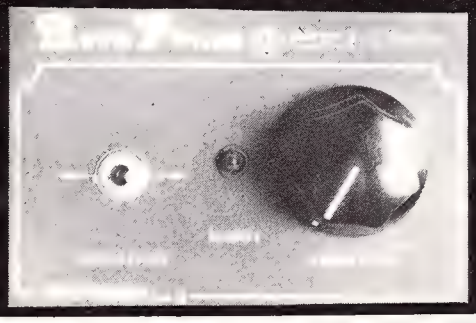

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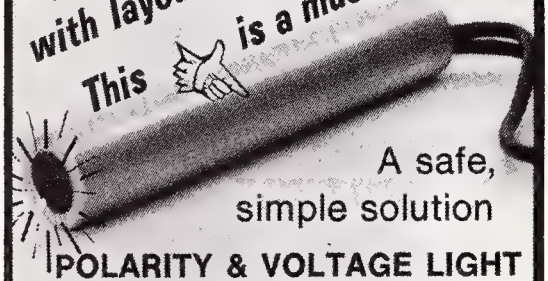

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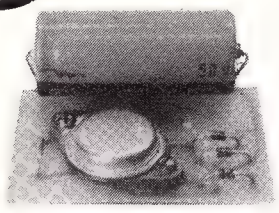

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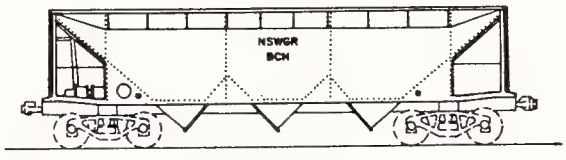

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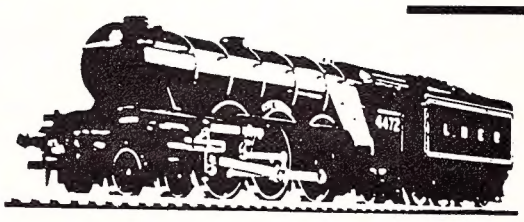

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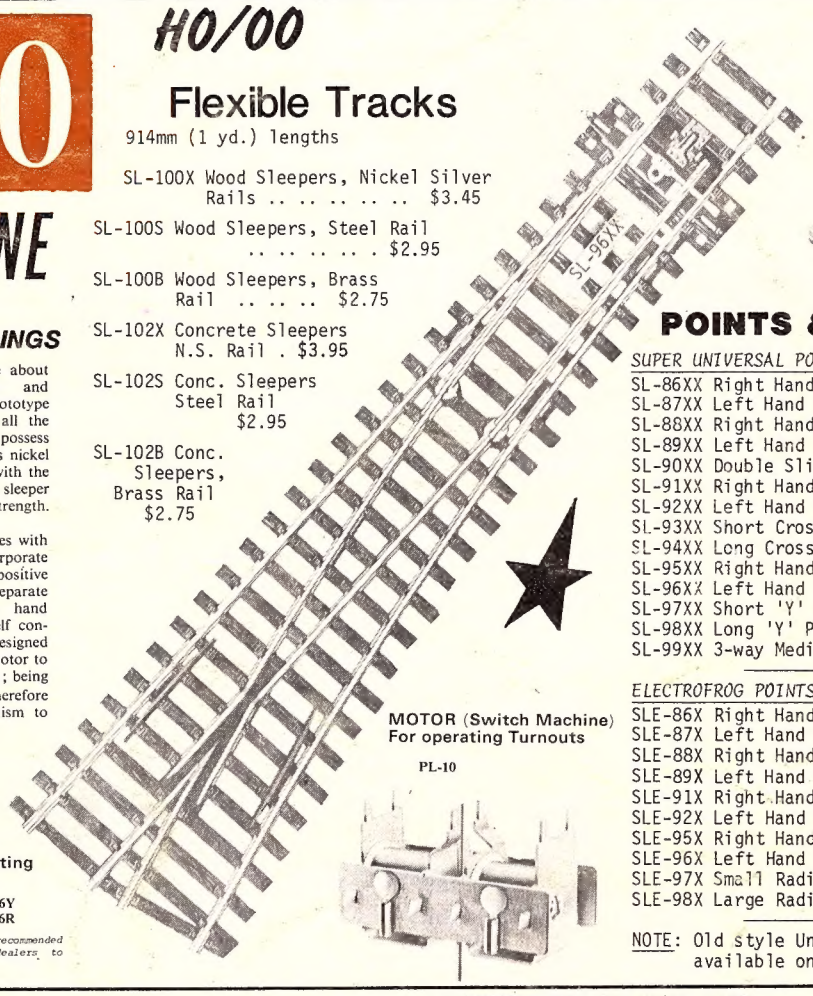
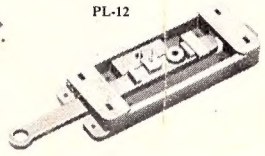


MOTOR ADAPTOR
PL-12



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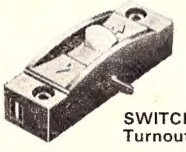

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